Contents

# AddROI

*(Tags: @FR, @FR008, @UR008, @Analysis)*

## AddCariesROICursorAppearanceChange

*(Tags: @FR008-1, @UR008-1)*

**Given**  I have submitted an image

**When**  click the Add ROI button

**Then**  the Add ROI button changes appearance

**And**  the Cursor changes appearance to a crosshair

## AddCariesROICursorAppearanceReturn

*(Tags: @FR008-2, @UR008-1)*

**Given**  I have selected the Add ROI Button

**When**  I hit select the Add ROI button again or any other button

**Then**  the Add ROI button changes appearance back to original

**And**  the Cursor changes appearance back to default

## AddCariesROI

*(Tags: @FR008-3, @UR008-1)*

**Given**  I have selected the Add ROI Button

**When**  I move the cursor to the image and click

**Then**  a new ROI is display with the arrow point at the mouse click

**And**  pointing away from the nearest tooth centre

**And**  the Add ROI button changes appearance back to original

**And**  the Cursor changes appearance back to default

# AnalysisProgressIndicator

*(Tags: @FR, @FR024, @UR022, @Analysis, @WebOnly)*

## ShowFileUploadProgress

*(Tags: @FR024-1, @UR022-1, @WebOnly)*

**Given**  I have logged in with analysis permissions

**When**  I submit an image for analysis

**Then**  I can see a progress bar

**And**  the progress bar fills from left to right until completely full

**When**  the progress bar is full

**Then**  the image is displayed

**And**  the progress bar is hidden

## ShowAnalysisProgress

*(Tags: @FR024-2, @UR022-2)*

**Given**  I have submitted an image for analysis

**When**  the image is displayed

**Then**  the status of the analysis is displayed over the image

**When**  the analysis progresses

**Then**  the status is updated to reflect the stage of the analysis

# Anonymise DICOM Images

*(Tags: @FR, @FR011, @UR011, @Security, @WebOnly)*

## AnonymiseDICOMImage

*(Tags: @FR011-1, @UR011-1)*

**When**  I submit a DICOM Image

**Then**  the trace information in the web browser indicates an empty patient name and default birth date

**And**  the trace information displayed on the web server indicates an empty patient name and default birth date

# AuthorisationAccess

*(Tags: @FR, @FR020, @UR017, @Security, @WebOnly)*

## AnonymousCanAccessHomepage

*(Tags: @FR020-1, @UR017-1)*

**Given**  I am logged out

**And**  no Allowed IP Range exists which includes my IP address

**When**  I access <base url>

**Then**  the assistdent.net home page is displayed

## AnonymousCanAccessTour

*(Tags: @FR020-2, @UR017-1)*

**Given**  I am logged out

**And**  no Allowed IP Range exists which includes my IP address

**When**  I access <base url>/tour

**Then**  the assistdent.net tour page is displayed

## AnonymousCanAccessLegal

*(Tags: @FR020-3, @UR017-1)*

**Given**  I am logged out

**And**  no Allowed IP Range exists which includes my IP address

**When**  I access <base url>/legal

**Then**  the assistdent.net legal page is displayed

## AnonymousCanAccessContact

*(Tags: @FR020-4, @UR017-1)*

**Given**  I am logged out

**And**  no Allowed IP Range exists which includes my IP address

**When**  I access <base url>/contact

**Then**  the assistdent.net contact page is displayed

## AnonymouseCannotAccessAnalysis

*(Tags: @FR020-5, @UR017-1)*

**Given**  I am logged out

**And**  no Allowed IP Range exists which includes my IP address

**When**  I access <base url>/analysis

**Then**  the assistdent.net login page is displayed

## AnonymouseCannotAccessFeedback

*(Tags: @FR020-6, @UR017-1)*

**Given**  I am logged out

**And**  no Allowed IP Range exists which includes my IP address

**When**  I access <base url>/feedback/new

**Then**  the assistdent.net login page is displayed

## AnonymouseCannotAccessManageUsers

*(Tags: @FR020-7, @UR017-1)*

**Given**  I am logged out

**And**  no Allowed IP Range exists which includes my IP address

**When**  I access <base url>/user

**Then**  the assistdent.net login page is displayed

## AnonymousCannotAccessAllowedIPs

*(Tags: @FR020-8, @UR017-1)*

**Given**  I am logged out

**And**  no Allowed IP Range exists which includes my IP address

**When**  I access <base url>/allowedips

**Then**  the assistdent.net login page is displayed

## UserCanAccessAnalysis

*(Tags: @FR020-9, @UR017-1)*

**Given**  I am logged in with a username and password

**And**  I have analysis permissions

**When**  I access <base url>/analysis

**Then**  the assistdent.net analysis page is displayed

## UserCanAccessFeedback

*(Tags: @FR020-10, @UR017-1)*

**Given**  I am logged in with a username and password

**And**  I do not have admin permissions

**When**  I access <base url>/feedback/new

**Then**  the assistdent.net feedback page is displayed

## UserCannotAccessManageUsers

*(Tags: @FR020-11, @UR017-1)*

**Given**  I am logged in with a username and password

**And**  I do not have admin permissions

**When**  I access <base url>/user

**Then**  the assistdent.net login page is displayed

## UserCannotAccessAllowedIPs

*(Tags: @FR020-12, @UR017-1)*

**Given**  I am logged in with a username and password

**And**  I do not have admin permissions

**When**  I access <base url>/allowedips

**Then**  the assistdent.net login page is displayed

## AdminCanAccessManageUsers

*(Tags: @FR020-13, @UR017-1)*

**Given**  I am logged in with admin permissions

**When**  I access <base url>/user

**Then**  the assistdent.net manage users page is displayed

## AdminCanAccessAllowedIPs

*(Tags: @FR020-14, @UR017-1)*

**Given**  I am logged in with admin permissions

**When**  I access <base url>/allowedips

**Then**  the assistdent.net allowed ips page is displayed

## UserRefusedAccessAnalysis

*(Tags: @FR020-15, @UR017-2)*

**Given**  I am logged in with a username and password

**And**  I do not have analysis permissions

**When**  I access <base url>/analysis

**Then**  the assistdent.net analysis page is not displayed

# AuthorisationAccess

*(Tags: @FR, @FR023, @UR017, @Security, @WebOnly)*

## UserCanAccessLogin

*(Tags: @FR023-1, @UR017-1)*

**Given**  I am logged out

**When**  I click the Login link

**Then**  I am redirected to the login page

## UserCannotLoginWithIncorrectPassword

*(Tags: @FR023-2, @UR017-1)*

**Given**  I am logged out

**And**  I have navigated to the login page

**When**  I enter my username

**And**  I enter an invalid password

**Then**  I am not granted access

**And**  I remain on the login page

## UserCannotLoginWithIncorrectUsername

*(Tags: @FR023-3, @UR017-1)*

**Given**  I am logged out

**And**  I have navigated to the login page

**When**  I enter an invalid username

**And**  I enter a valid password for another user

**Then**  I am not granted access

**And**  I remain on the login page

## UserCanLoginWithCorrectCredentials

*(Tags: @FR023-4, @UR017-1)*

**Given**  I am logged out

**And**  I have navigated to the login page

**When**  I enter an valid username

**And**  I enter a valid password

**Then**  I am redirected to another page

**When**  I click the Analysis link

**Then**  I have access to the Analysis page

# BypassLogin

*(Tags: @FR, @FR013, @UR013, @Security, @WebOnly)*

## CanAnalyzeFromAllowedIPAddress

*(Tags: @FR013-1, @UR013-1)*

**Given**  the current computer IP is specified exclusively by a single Allowed IP Range using exact IP address

**And**  I am logged out of the application

**When**  I access the URL <base>/Analysis

**Then**  the analysis page is displayed

**When**  I submit an image

**Then**  the image and results are displayed

## CanAnalyzeFromAllowedIPRange

*(Tags: @FR013-2, @UR013-1)*

**Given**  the current computer IP is specified exclusively by a single Allowed IP Range within a range of addresses

**And**  I am logged out of the application

**When**  I access the URL <base>/Analysis

**Then**  the analysis page is displayed

**When**  I submit an image

**Then**  the image and results are displayed

## CantAnalyzeFeomNoAllowedIP

*(Tags: @FR013-3, @UR013-2)*

**Given**  the current computer IP is not covered by any Allowed IP Range entry

**And**  I am logged out of the application

**When**  I access the URL <base>/Analysis

**Then**  the login page is displayed

## CantAnalyzeFromExpiredAllowedIP

*(Tags: @FR013-4, @UR013-3)*

**Given**  the current computer IP is specified exclusively by an Allowed IP Range which is expired

**And**  I am logged out of the application

**When**  I access the URL <base>/Analysis

**Then**  the login page is displayed

# CommandLineInterface

*(Tags: @FR, @FR026, @UR024, @Integration, @DesktopOnly)*

## PassImage

*(Tags: @FR026-1, @UR024-1)*

**When**  I request AssistDent from the command line

**And**  the --image option is set to "image8.tif"

**Then**  AssistDent starts

**And**  the image analyzed is "image8.tif"

## PassTitle

*(Tags: @FR026-2, @UR024-1)*

**When**  I request AssistDent from the command line

**And**  the --title option is set to "Developer/Dave"

**Then**  AssistDent starts

**And**  the window title contains the text "Developer/Dave"

# ControlButtonTooltips

*(Tags: @FR, @FR010, @UR010, @Labelling, @WebOnly)*

## ShowTooltip

*(Tags: @FR010-1, @UR010-1)*

**Given**  an analyzed bitewing image

**When**  I hover over the <button name> button

**Then**  a tooltip with the text <tooltip text> appears above the button

### Examples:

|  |  |
| --- | --- |
| button name | tooltip text |
| toggle | Hide |
| delete | Delete |
| flip | Flip |
| add | Add |
| full | Full Screen |

# CustomerPayment

*(Tags: @FR, @FR031, @UR029, @Admin, @DesktopOnly)*

## TakePaymentUK

*(Tags: @FR031-1, @UR029-1)*

**Given**  I have register a trial licence for a UK user

**When**  I access the purchase licence page

**And**  choose the default price

**Then**  the payment is in GBP

**And**  UK VAT is applied

## TakePaymentEU:

*(Tags: @FR031-2, @UR029-2)*

**Given**  I have register a trial licence for an EU user

**When**  I access the purchase licence page

**And**  choose the default price

**Then**  the payment is in Euros

**And**  UK VAT is not applied

## ViewInvoiceUK:

*(Tags: @FR031-3, @UR029-3)*

**Given**  I have paid for a subscription for a UK user

**When**  I access my billing portal

**Then**  I can view an invoice for each month

**And**  the invoice contains the price paid

**And**  the invoice contains the customer name and address

**And**  the invoice contains the VAT amount

**And**  the invoice contains the MIL VAT number

## ViewInvoiceEuro:

*(Tags: @FR031-4, @UR029-4)*

**Given**  I have paid for a subscription for an EU user

**When**  I access my billing portal

**Then**  I can view an invoice for each month

**And**  the invoice contains the price paid

**And**  the invoice contains the customer name and address

**And**  the invoice contains a statement regarding reverse tax

# DeleteROI

*(Tags: @FR, @FR006, @UR006, @Analysis)*

## DisplayDeleteButton

*(Tags: @FR006-1, @UR006-1, @WebOnly)*

**Given**  2 submitted bitewing images

**Then**  the images shall be displayed in tile view

**And**  a delete button shall be displayed alongside each image

## DeleteROI

*(Tags: @FR006-2, @UR006-1)*

**Given**  an analyzed bitewing image which contains caries ROIs

**When**  I select an ROI

**And**  click the delete button corresponding to that image

**Then**  the selected caries ROI will be deleted

## DeleteROIs

*(Tags: @FR006-3, @UR006-1)*

**Given**  an analyzed bitewing image which contains caries ROIs

**When**  I select 2 or more ROIs

**And**  click the delete button corresponding to that image

**Then**  the selected caries ROIs will be deleted

# DesktopLicensing

*(Tags: @FR, @FR027, @UR025, @Admin, @DesktopOnly)*

## RegisterUser

*(Tags: @FR027-1, @UR025-1)*

**Given**  no licence exists for the current machine

**When**  I start the desktop app

**Then**  the user registration form is displayed

**When**  I enter the registration details

**Then**  the desktop app starts

## ExpiredLicenceRestrictsAccess

*(Tags: @FR027-2, @UR025-2)*

**Given**  a licence exists for the current machine

**And**  the licence is expired

**When**  I start the desktop app

**Then**  a message tells me to upgrade

## ExpiredLicenceRedirectsToUpgrade

*(Tags: @FR027-3, @UR025-3)*

**Given**  a licence exists for the current machine

**And**  the licence is expired

**When**  I start the desktop app

**Then**  the upgrade trial licence web page is displayed

## ManualUpgradeAvailable

*(Tags: @FR027-4, @UR025-3)*

**Given**  a licence exists for the current machine

**And**  the licence is not expired

**When**  I start the desktop app

**Then**  the menu includes an option to upgrade

## ManualUpgradeLinksToStore

*(Tags: @FR027-5, @UR025-3)*

**Given**  a licence exists for the current machine

**And**  the licence is not expired

**And**  I have started the desktop app

**When**  I choose the menu option "Upgrade Licence"

**Then**  the upgrade trial licence web page is displayed

**And**  the choice of upgrade options is approriate to my country

## ValidLicence

*(Tags: @FR027-6, @UR025-4)*

**Given**  a licence exists for the current machine

**And**  the licence is not expired

**When**  I start the desktop app

**Then**  the desktop app opens

## DisplayLicence

*(Tags: @FR027-7, @UR025-5)*

**Given**  a licence exists for the current machine

**And**  the licence is not expired

**When**  I open the About Box

**Then**  the licence key is displayed

**And**  the licence expiry date is displayed

**And**  the licensee is displayed

## EnterNewLicenceKey

*(Tags: @FR027-8, @UR025-6)*

**Given**  a licence exists for the current machine

**And**  the licence is not expired

**And**  I have started the desktop app

**When**  I open the About Box

**And**  I click Enter Key

**And**  I enter a new valid key from the same CryptoLens product

**Then**  the key is accepted

**When**  I restart the application

**Then**  the application restarts

## EnterNewLicenceKeyNewProduct

*(Tags: @FR027-9, @UR025-6)*

**Given**  a licence exists for the current machine

**And**  the licence is not expired

**And**  I have started the desktop app

**When**  I open the About Box

**And**  I click Enter Key

**And**  I enter a new valid key prefixed with a new product id in the form "{product-id}:{licence-key}"

**Then**  the key is accepted

**When**  I restart the application

**Then**  the application restarts

## PurchaseLicenseExtension

*(Tags: @FR027-10, @UR025-7)*

**When**  I choose the Purchase Upgrade menu option

**And**  I fill in my payment details

**And**  I complete the purchase

**And**  I restart the desktop app

**Then**  the license period is extended by the amount specified for the purchased product

## ConfigureTrialPeriod

*(Tags: @FR027-11, @UR025-8)*

**Given**  no licence exists for the current machine

**When**  I configure the store app to generate a <num1> day(s) licence

**And**  I register for a trial licence

**Then**  the licence expiry date can be seen in the application

**And**  the expiry date is in <num2> day(s)

### Examples:

|  |  |
| --- | --- |
| num1 | num2 |
| 1 | 1 |
| 14 | 14 |
| 30 | 30 |

# DetectionLogging

*(Tags: @FR, @FR021, @UR019, @Admin, @WebOnly)*

## ViewLoggedUserDetection

*(Tags: @FR021-1, @UR019-1)*

**Given**  I am logged in with admin permissions

**And**  I access <base>/analysis

**And**  I submit 1 image and receive the results

**When**  I access <base>/User

**And**  click the Details link next to my username

**Then**  I see a list of detections

**And**  the list of detections includes an entry for the analysis performed

## ViewLoggedAllowedIPDetection

*(Tags: @FR021-2, @UR019-2)*

**Given**  I am not logged on

**And**  an Allowed Ip exists for my computer

**And**  I access <base>/analysis

**And**  I submit 1 image and receive the results

**When**  I log on with admin permissions

**And**  I access <base>/AllowedIPs

**And**  click the Details link next the the Allowed IP for my computer

**Then**  I see a list of detections

**And**  the list of detections includes an entry for the analysis performed

# DICOMImageFormat

*(Tags: @FR, @FR017, @UR016, @Analysis, @WebOnly)*

## CanAnalyseTiffImages

*(Tags: @FR017-1, @UR016-1, @UR016-4)*

**Given**  I have logged in with analysis permissions

**When**  I enter URL <base>/Analysis

**And**  click the Select File area

**And**  browse for a a bitewing image in DICOM format

**And**  submit the image

**Then**  the image is displayed correctly

**And**  the results are displayed

# DisplayImage

*(Tags: @FR, @FR001, @UR001, @Analysis)*

The image shall be displayed on screen

## DisplayImage

*(Tags: @FR001-1, @UR001-1)*

**Given**  a bitewing image

**When**  submitted for analysis

**Then**  the bitewing image is displayed on screen

## DisplayImages

*(Tags: @FR001-2, @UR001-2, @WebOnly)*

**Given**  multiple bitewing images

**When**  submitted for analysis

**Then**  all bitewing images are displayed on screen

# FeatureTour

*(Tags: @FR, @FR012, @UR012, @Labelling, @WebOnly)*

## StartFeatureTour

*(Tags: @FR012-1, @UR012-1)*

**When**  I access the tour URL

**Then**  the tour starts

## RetakeFeatureTour

*(Tags: @FR012-2, @UR012-1)*

**When**  I access the tour URL a subsequent time

**Then**  the tour starts

## FollowFeatureTour

*(Tags: @FR012-3, @UR012-1)*

**Given**  the tour is started

**When**  I press Next

**Then**  the tour moves to the next step

**And**  I can repeatedly press next until the end of the tour is reached

# FullScreen

*(Tags: @FR, @FR005, @UR005, @Analysis, @WebOnly)*

The image shall be displayed expanded to fill as much of the screen as possible

## AccessFullScreen

*(Tags: @FR005-1, @UR005-1)*

**Given**  2 submitted bitewing images

**Then**  the images shall be displayed in tile view

**And**  an expand button shall be displayed alongside each image

## EnterFullScreen

*(Tags: @FR005-2, @UR005-1)*

**Given**  2 images displayed in tile view

**When**  I press the the expand button corresponding to the first image

**Then**  the first image is displayed to fill as much of the screen as possible

**And**  the other image is hidden from view

## AccessTileView

*(Tags: @FR005-3, @UR005-1)*

**Given**  an image displayed full screen

**Then**  an exit/collapse button shall be displayed alongside the image

## ReturnToTileView

*(Tags: @FR005-4, @UR005-1)*

**Given**  an image displayed full screen

**When**  I press the exit/collapse button the image is displayed in tile view

# GenerateAndViewFeedback

*(Tags: @FR, @FR022, @UR020, @UR021, @Admin, @WebOnly)*

## UserCanAccessFeedbackForm

*(Tags: @FR022-1, @UR021-1)*

**Given**  I am logged on with analysis permissions

**When**  I access the homepage

**Then**  I can see the feedback link

**When**  I access the analysis page

**Then**  I can see the feedback link

**When**  I follow the feedback link

**Then**  I see the feedback page

**When**  I access <base>/Feedback/New

**Then**  I see the feedback page

## UserCanEnterFeedback

*(Tags: @FR022-2, @UR021-1)*

**Given**  I am logged in with analysis permissions

**And**  I have accessed the feedback form

**When**  I enter text into the feedback form

**And**  click Submit Feedback

**Then**  i am redirected to the homepage

## AdminCanAccessUserFeedback

*(Tags: @FR022-3, @UR020-1)*

**Given**  feedback has been entered for an identified user

**And**  I am logged in with admin permissions

**And**  I access <base>/User

**And**  I click on the Details link next to the user

**Then**  I can see a list of the user's feedback

**And**  the list contains the date of the feedback

**And**  the list contains the text of the feedback

## AllowedIPCanAccessFeedbackForm

*(Tags: @FR022-4, @UR021-2)*

**Given**  I am not logged on

**And**  an Allowed IP exists which includes my computer's IP address

**When**  I access the homepage

**Then**  I can see the feedback link

**When**  I access the analysis page

**Then**  I can see the feedback link

**When**  I follow the feedback link

**Then**  I see the feedback page

**When**  I access <base>/Feedback/New

**Then**  I see the feedback page

## AllowedIPCanEnterFeedback

*(Tags: @FR022-5, @UR021-2)*

**Given**  I am not logged on

**And**  an Allowed IP exists which includes my computer's IP address

**And**  I have accessed the feedback form

**When**  I enter text into the feedback form

**And**  click Submit Feedback

**Then**  i am redirected to the homepage

## AdminCanAccessAllowedIPFeedback

*(Tags: @FR022-6, @UR020-2)*

**Given**  feedback has been entered for an Allowed IP

**And**  I am logged in with admin permissions

**And**  I access <base>/AllowedIPs

**And**  I click on the Details link next to the Allowed IP

**Then**  I can see a list of the feedback associated from that IP

**And**  the list contains the date of the feedback

**And**  the list contains the text of the feedback

# ImageID

*(Tags: @FR, @FR025, @Analysis, @WebOnly)*

## ShowImageIDFilename

*(Tags: @FR025-1, @UR023-1)*

**Given**  I have submitted an image for analysis

**Then**  the image ID is shown

**And**  the image ID displays the image filename

## ShowImageIDEditBox

*(Tags: @FR025-2, @UR023-2)*

**Given**  I have submitted an image for analysis

**And**  the image ID displays the image filename

**When**  I hover over the ID

**Then**  a box is shown indicating that the field can be edited

# ImageMagnifer

*(Tags: @FR, @FR004, @UR004, @Analysis)*

With the mouse button held down, the section of the image directly under the mouse pointer will be zoomed to 3x magnification

## ShowMagnifer

*(Tags: @FR004-1, @UR004-1)*

**Given**  a bitewing image displayed on screen

**When**  I hover the mouse pointer over a location in the image

**And**  I hold the mouse button down

**Then**  the magnifier should be displayed

**And**  the image location should be displayed at 3x magnification

## MoveMagnifer

*(Tags: @FR004-2, @UR004-1)*

**Given**  a bitewing image displayed on screen

**And**  the magnifier is currently displayed

**When**  I move the mouse pointer to another location in the image

**Then**  the image location should be updated

## HideAnnotationInMagnifer

*(Tags: @FR004-3, @UR004-2)*

**Given**  a bitewing image displayed on screen

**And**  the magnifier is currently displayed

**And**  the magnifer is positioned over an annotation

**Then**  no annotation should be displayed in the magnification

# ImageSubmit

*(Tags: @FR, @FR018, @UR016, @Analysis, @WebOnly)*

## CanSubmitImageByBrowsing

*(Tags: @FR018-1, @UR016-1)*

**Given**  I have logged in with analysis permissions

**When**  I enter URL <base>/Analysis

**And**  click the dashed submit area

**And**  browse for a bitewing image

**And**  submit the image

**Then**  the image is displayed correctly

**And**  the results are displayed

## CanSubmitImageByDragAndDrop

*(Tags: @FR018-1, @UR016-2)*

**Given**  I have logged in with analysis permissions

**When**  I enter URL <base>/Analysis

**And**  drag and drop a bitewing image from Explorer to the dashed submit area

**Then**  the image is displayed correctly

**And**  the results are displayed

## CanSubmitImagesByBrowsing

*(Tags: @FR018-3, @UR016-1)*

**Given**  I have logged in with analysis permissions

**When**  I enter URL <base>/Analysis

**And**  click the dashed submit area

**And**  browse for 2 bitewing images

**And**  submit the images

**Then**  the images are displayed correctly

**And**  the results are displayed

## CanSubmitImagesByDragAndDrop

*(Tags: @FR018-4, @UR016-2)*

**Given**  I have logged in with analysis permissions

**When**  I enter URL <base>/Analysis

**And**  drag and drop 2 bitewing images from Explorer to the dashed submit area

**Then**  the images are displayed correctly

**And**  the results are displayed

# LegalInformationPage

*(Tags: @FR, @FR015, @UR015, @Labelling)*

## CanAccessLegalPage

*(Tags: @FR015-1, @UR015-1, @WebOnly)*

**When**  I enter URL <base>/Legal

**Then**  a page of legal information is displayed

**And**  it contains the Regulatory clinical use information

## CanAccessClinicalUse

*(Tags: @FR015-2, @UR015-1, @DesktopOnly)*

**When**  I open the About menu option

**Then**  a tab of clinical use is displayed

**And**  it contains the clinical use information

# ManageAllowedIPRanges

*(Tags: @FR, @FR014, @UR014, @Security, @WebOnly)*

## CanAccessAllowedIPRangeURL

*(Tags: @FR014-1, @UR014-1)*

**Given**  I have logged in with admin permissions

**When**  I enter URL <base>/AllowedIPs

**Then**  a list of Allowed IP Ranges is displayed

**And**  the name of each Allowed IP Range is listed

**And**  the start address of each Allowed IP Range is listed

**And**  the end address of each Allowed IP Range is listed

**And**  the expiry date of each Allowed IP Range is listed

## CanAddAllowedIPRange

*(Tags: @FR014-2, @UR014-2)*

**Given**  I have logged in with admin permissions

**And**  have accessed the list of Allowed IP Ranges

**When**  I click the Allow IP Range button

**And**  enter a name

**And**  enter a start address

**And**  enter an end address

**And**  enter an expiry date

**And**  click Add

**Then**  the page is redirected to the list of Allowed IP Ranges

**And**  the list of Allowed IP Ranges now includes the new entry

**And**  the details match those entered in previous steps

## CantAddInvalidAllowedIPRange

*(Tags: @FR014-3, @UR014-2)*

**Given**  I have logged in with admin permissions

**And**  have accessed the list of Allowed IP Ranges

**When**  I click the Allow IP Range button

**And**  enter a name

**And**  enter a start address

**And**  enter an end address

**And**  enter the name again in the expiry date field

**And**  click Add

**Then**  a validation error message appears adjacent to the expiry date field

**And**  the Allowed IP Range cannot be saved

## CanEditAllowedIPRange

*(Tags: @FR014-4, @UR014-3)*

**Given**  I have logged in with admin permissions

**And**  I have created at least one Allowed IP Range

**When**  I click the Edit link

**And**  edit the name

**And**  click the Save button

**Then**  the name is updated in the list of Allowed IP Ranges

## CantEditInvalidAllowedIPRange

*(Tags: @FR014-5, @UR014-3)*

**Given**  I have logged in with admin permissions

**And**  I have created at least one Allowed IP Range

**When**  I click the Edit link

**And**  repeat the name in the Expiry Date field

**And**  click the Save button

**Then**  a validation error message appears adjacent to the expiry date field

**And**  the Allowed IP Range cannot be saved

## CanDeleteAllowedIPRange

*(Tags: @FR014-6, @UR014-4)*

**Given**  I have logged in with admin permissions

**And**  I have created at least one Allowed IP Range

**When**  I click the Delete link

**Then**  the list of Allowed IP Ranges no longer includes the deleted record

# ManageUserLogins

*(Tags: @FR, @FR019, @UR018, @Security, @WebOnly)*

## CanAccessManageUsersURL

*(Tags: @FR019-1, @UR018-1)*

**Given**  I have logged in with admin permissions

**When**  I enter URL <base>/User

**Then**  a list of Users is displayed

**And**  the name of each User is displayed

**And**  the email address of each User is displayed

**And**  the number of performed detections is displayed

## CanAddUser

*(Tags: @FR019-2, @UR018-2)*

**Given**  I have logged in with admin permissions

**And**  have accessed the list of Users

**When**  I click the New User button

**And**  enter an email

**And**  enter a full name

**And**  enter comments

**And**  enter a password

**And**  confirm a password

**And**  click Register

**Then**  the page is redirected to the list of Users

**And**  the list of Users now includes the new entry

**And**  the details match those entered in previous steps

## CantAddInvalidUser

*(Tags: @FR019-3, @UR018-2)*

**Given**  I have logged in with admin permissions

**And**  have accessed the list of Users

**When**  I click the New User button

**And**  click Register

**Then**  the validation error for email address is displayed

**And**  the validation error for password is displayed

**When**  I enter "name" in the email field

**And**  click Register

**Then**  the validation error a valid email address is displayed

**And**  the validation error for password is displayed

**When**  I enter "name@email.com" in the email field

**And**  click Register

**Then**  the validation error for password is displayed

**When**  I enter "12345" in the password field

**And**  click Register

**Then**  the validation error for password complexity is displayed

**When**  I enter "123456" in the password field

**And**  click Register

**Then**  the validation error for password confirmation is displayed

**When**  I enter "notamatch" in the password field

**And**  click Register

**Then**  the validation error for password confirmation is displayed

## CanDeleteAllowedIPRange

*(Tags: @FR019-4, @UR018-3)*

**Given**  I have logged in with admin permissions

**And**  I have created at least one User

**When**  I click the Delete link

**Then**  the list of Users no longer includes the deleted record

# ProgressDisplay

*(Tags: @FR, @FR028, @UR026, @Analysis, @DesktopOnly)*

## ShowAnalysisFeedback

*(Tags: @FR028-1, @UR026-1)*

**When**  I submit an image for analysis

**Then**  the app displays status updates

**And**  the updates are clearly visible

# RepositionROI

*(Tags: @FR, @FR009, @UR009, @Analysis)*

## MoveAndDragROI

*(Tags: @FR009-1, @UR009-1)*

**Given**  an analyzed bitewing image which contains caries ROIs

**When**  I click and drag an ROI

**Then**  the ROI will move with the mouse

**And**  the ROI selection status will remain unchanged

## MoveROI

*(Tags: @FR009-2, @UR009-1)*

**Given**  an analyzed bitewing image which contains caries ROIs

**When**  I click and drag an ROI

**And**  move the mouse

**And**  release the mouse

**Then**  the ROI will stay at its new location

**And**  the ROI selection status will remain unchanged

## FlipROI

*(Tags: @FR009-3, @UR009-2)*

**Given**  an analyzed bitewing image which contains caries ROIs

**When**  I select an ROI

**And**  click the flip button corresponding to that image

**Then**  the selected caries ROI will be flipped

**And**  the ROI will remain selected

## FlipROIs

*(Tags: @FR009-4, @UR009-2)*

**Given**  an analyzed bitewing image which contains caries ROIs

**When**  I select 2 or more ROIs

**And**  click the flip button corresponding to that image

**Then**  the selected caries ROIs will be flipped

**And**  the ROIs will remain selected

# ROIIndicator

*(Tags: @FR, @FR003, @UR003, @Analysis)*

The location of caries regions of interest shall be displayed in position on the image

## ROIIndicators

*(Tags: @FR003-1, @UR003-1)*

**Given**  a bitewing image known to contain caries

**When**  caries detection is complete

**Then**  caries ROIs are indicated over the image

## ROIArrows

*(Tags: @FR003-2, @UR003-1)*

**Given**  a bitewing image known to contain caries

**When**  caries detection is complete

**Then**  caries ROIs are indicated by arrows

**And**  the arrows do not obscure the tooth edge

## ROIEasilySeen

*(Tags: @FR003-3, @UR003-1)*

**Given**  a bitewing image known to contain caries

**When**  caries detection is complete

**Then**  caries ROI indicators are a consistent size

**And**  caries ROI indicators are brightly coloured

## ROIConsistentSize

*(Tags: @FR003-4, @UR003-1, @WebOnly)*

**Given**  2 bitewing images of different resolution

**When**  caries detection is complete

**Then**  caries ROI indicators in both images are a consistent size

# SeeWhatsNew

*(Tags: @FR, @FR029, @UR027, @Analysis, @DesktopOnly)*

## SeeWhatsNewOnStartup

*(Tags: @FR029-1, @UR027-1)*

**Given**  I have not dismissed the news for the version installed

**When**  I start AssistDent

**Then**  the what's new form is displayed

## SeeWhatsNewAllVersions

*(Tags: @FR029-2, @UR027-1)*

**Given**  an upgrade of AssistDent from the previous version

**And**  the new features were previously dismissed

**When**  I start AssistDent

**Then**  the what's new form is displayed

**And**  the what's new form contains the new features

**And**  the new features apply only to the current version

## SeeWhatsNewAllVersions

*(Tags: @FR029-3, @UR027-1)*

**Given**  a clean install of AssistDent with no settings files

**When**  I start AssistDent

**Then**  the what's new form is displayed

**And**  the what's new form contains the new features

**And**  the new features apply to the current version and every previous version

## DimissAndDontShowAgain

*(Tags: @FR029-4, @UR027-2)*

**Given**  I have not dismissed the news for the version installed

**And**  I start AssistDent

**And**  the what's new form is displayed

**When**  I check the "Don't show me this again" checkbox

**And**  restart AssistDent

**Then**  AssistDent starts

**And**  the what's new form is not displayed

## SeeWhatsNewAfterStartup

*(Tags: @FR029-5, @UR027-3)*

**Given**  I have started AssistDent

**When**  I access the "See What' New" menu option

**Then**  the what's new form is displayed

# TiffImageFormat

*(Tags: @FR, @FR016, @UR016, @Analysis, @WebOnly)*

## CanAnalyseTiffImages

*(Tags: @FR016-1, @UR016-1, @UR016-3)*

**Given**  I have logged in with analysis permissions

**When**  I enter URL <base>/Analysis

**And**  click the Select File area

**And**  browse for a a bitewing image in Tiff format

**And**  submit the image

**Then**  the image is displayed correctly

**And**  the results are displayed

# ToggleAnnotation

*(Tags: @FR, @FR007, @UR007, @Analysis)*

## AccessAnnotationToggle

*(Tags: @FR007-1, @UR007-1, @WebOnly)*

**Given**  2 submitted bitewing images

**Then**  the images shall be displayed in tile view

**And**  a hide annotation button shall be displayed alongside each image

## HideImageAnnotation

*(Tags: @FR007-2, @UR007-1)*

**Given**  an analyzed bitewing image which contains caries ROIs

**When**  I click the corresponding hide annotation button

**Then**  the tooth indicators are hidden

**And**  the caries ROI indicators are hidden

**And**  the hide annotation button is replaced with a show annotation button

## RestoreImageAnnotation

*(Tags: @FR007-3, @UR007-2)*

**Given**  an analyzed bitewing image which contains caries ROIs

**And**  the annotation is currently hidden

**When**  I click the corresponding show annotation button

**Then**  the tooth indicators are displayed

**And**  the caries ROI indicators are displayed

**And**  the show annotation button is replaced with a hide annotation button

# ToothIndicator

*(Tags: @FR, @FR002, @UR002, @Analysis)*

Detected teeth shall be displayed in position over the image

## ToothIndicators

*(Tags: @FR002-1, @UR002-1)*

**Given**  a bitewing image known to contain teeth

**When**  caries detection is complete

**Then**  the detected teeth are displayed on the image

# UpdateClient

*(Tags: @FR, @FR032, @Admin, @DesktopOnly)*

## UpdateNotAvailable

*(Tags: @FR025-1, @UR024-1)*

**Given**  an update is not available

**When**  I start the app

**Then**  the app starts

## UpdateAvailable

*(Tags: @FR025-2, @UR024-2, @UR024-3)*

**Given**  an update is available

**When**  I start the app

**Then**  the app starts

**And**  a message is displayed

**And**  the message indicates the availability of an update

**And**  the message includes a link

# UserRegistration

*(Tags: @FR, @FR030, @UR028, @Admin, @DesktopOnly)*

## ShowRegistrationForm

*(Tags: @FR029-1, @UR025-1)*

**Given**  no licence exists for the current machine

**When**  I start Assistdent

**Then**  the user registration form is displayed

## CanRegisterInCECountry

*(Tags: @FR029-2, @UR028-1)*

**Given**  no licence exists for the current machine

**And**  I start Assistdent

**And**  the use registration form is displayed

**When**  I enter valid details

**And**  I select "Germany" for the country

**Then**  the registration is successful

**And**  AssistDent starts

## CanRegisterInUK

*(Tags: @FR029-3, @UR028-2)*

**Given**  no licence exists for the current machine

**And**  I start Assistdent

**And**  the use registration form is displayed

**When**  I enter valid details

**And**  I select "United Kingdom" for the country

**Then**  the registration is successful

**And**  AssistDent starts

## CannotRegisterInNonCECountry

*(Tags: @FR029-4, @UR028-3)*

**Given**  no licence exists for the current machine

**And**  I start Assistdent

**And**  the use registration form is displayed

**When**  I enter valid details

**And**  I select "United States" for the country

**Then**  the registration is unsuccesful

**And**  AssistDent does not start

# CariesDetectionPerformance

*(Tags: @NFR, @NFR002, @UR003, @Performance, @WebOnly)*

Measure the performance on the evaluation image set

## PerformanceEvaluation

*(Tags: @NFR002-1, @UR003)*

**Given**  I am logged in with analysis permissions

**When**  I evaluate the images

|  |  |
| --- | --- |
| image | goldstandard |
| TestData\Images\SC22.tif | TestData\GoldStandard\SC22.tif.caries.json |
| TestData\Images\SC28.tif | TestData\GoldStandard\SC28.tif.caries.json |
| TestData\Images\SC56.tif | TestData\GoldStandard\SC56.tif.caries.json |
| TestData\Images\SC64.tif | TestData\GoldStandard\SC64.tif.caries.json |
| TestData\Images\SC75.tif | TestData\GoldStandard\SC75.tif.caries.json |
| TestData\Images\SC85.tif | TestData\GoldStandard\SC85.tif.caries.json |
| TestData\Images\SC94.tif | TestData\GoldStandard\SC94.tif.caries.json |
| TestData\Images\ML29.tif | TestData\GoldStandard\ML29.tif.caries.json |
| TestData\Images\ML45.tif | TestData\GoldStandard\ML45.tif.caries.json |
| TestData\Images\ML51.tif | TestData\GoldStandard\ML51.tif.caries.json |
| TestData\Images\ML83.tif | TestData\GoldStandard\ML83.tif.caries.json |
| TestData\Images\ML89.tif | TestData\GoldStandard\ML89.tif.caries.json |
| TestData\Images\ML95.tif | TestData\GoldStandard\ML95.tif.caries.json |
| TestData\Images\ML102.tif | TestData\GoldStandard\ML102.tif.caries.json |
| TestData\Images\ML123.tif | TestData\GoldStandard\ML123.tif.caries.json |
| TestData\Images\ML128.tif | TestData\GoldStandard\ML128.tif.caries.json |
| TestData\Images\ML135.tif | TestData\GoldStandard\ML135.tif.caries.json |
| TestData\Images\RC8.tif | TestData\GoldStandard\RC8.tif.caries.json |
| TestData\Images\RC36.tif | TestData\GoldStandard\RC36.tif.caries.json |
| TestData\Images\RC43.tif | TestData\GoldStandard\RC43.tif.caries.json |
| TestData\Images\RC51.tif | TestData\GoldStandard\RC51.tif.caries.json |
| TestData\Images\RC56.tif | TestData\GoldStandard\RC56.tif.caries.json |
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| TestData\Images\RC79.tif | TestData\GoldStandard\RC79.tif.caries.json |
| TestData\Images\RC104.tif | TestData\GoldStandard\RC104.tif.caries.json |
| TestData\Images\RC108.tif | TestData\GoldStandard\RC108.tif.caries.json |
| TestData\Images\RC133.tif | TestData\GoldStandard\RC133.tif.caries.json |
| TestData\Images\RC136.tif | TestData\GoldStandard\RC136.tif.caries.json |
| TestData\Images\TS4.tif | TestData\GoldStandard\TS4.tif.caries.json |
| TestData\Images\TS19.tif | TestData\GoldStandard\TS19.tif.caries.json |
| TestData\Images\TS21.tif | TestData\GoldStandard\TS21.tif.caries.json |
| TestData\Images\TS45.tif | TestData\GoldStandard\TS45.tif.caries.json |
| TestData\Images\TS50.tif | TestData\GoldStandard\TS50.tif.caries.json |
| TestData\Images\TS75.tif | TestData\GoldStandard\TS75.tif.caries.json |
| TestData\Images\TS91.tif | TestData\GoldStandard\TS91.tif.caries.json |
| TestData\Images\TS95.tif | TestData\GoldStandard\TS95.tif.caries.json |
| TestData\Images\TS129.tif | TestData\GoldStandard\TS129.tif.caries.json |
| TestData\Images\TS146.tif | TestData\GoldStandard\TS146.tif.caries.json |
| TestData\Images\TS152.tif | TestData\GoldStandard\TS152.tif.caries.json |
| TestData\Images\TS212.tif | TestData\GoldStandard\TS212.tif.caries.json |
| TestData\Images\TS213.tif | TestData\GoldStandard\TS213.tif.caries.json |
| TestData\Images\TS217.tif | TestData\GoldStandard\TS217.tif.caries.json |
| TestData\Images\TS223.tif | TestData\GoldStandard\TS223.tif.caries.json |
| TestData\Images\TS230.tif | TestData\GoldStandard\TS230.tif.caries.json |
| TestData\Images\TS236.tif | TestData\GoldStandard\TS236.tif.caries.json |
| TestData\Images\TS237.tif | TestData\GoldStandard\TS237.tif.caries.json |
| TestData\Images\TS296.tif | TestData\GoldStandard\TS296.tif.caries.json |
| TestData\Images\TS299.tif | TestData\GoldStandard\TS299.tif.caries.json |
| TestData\Images\TS305.tif | TestData\GoldStandard\TS305.tif.caries.json |
| TestData\Images\TS313.tif | TestData\GoldStandard\TS313.tif.caries.json |
| TestData\Images\JD16.tif | TestData\GoldStandard\JD16.tif.caries.json |
| TestData\Images\JD43.tif | TestData\GoldStandard\JD43.tif.caries.json |
| TestData\Images\JD73.tif | TestData\GoldStandard\JD73.tif.caries.json |
| TestData\Images\JD91.tif | TestData\GoldStandard\JD91.tif.caries.json |
| TestData\Images\JD98.tif | TestData\GoldStandard\JD98.tif.caries.json |
| TestData\Images\JD107.tif | TestData\GoldStandard\JD107.tif.caries.json |
| TestData\Images\JD131.tif | TestData\GoldStandard\JD131.tif.caries.json |
| TestData\Images\JD142.tif | TestData\GoldStandard\JD142.tif.caries.json |
| TestData\Images\JD143.tif | TestData\GoldStandard\JD143.tif.caries.json |
| TestData\Images\CR26.dcm | TestData\GoldStandard\CR26.dcm.caries.json |
| TestData\Images\CR33.dcm | TestData\GoldStandard\CR33.dcm.caries.json |
| TestData\Images\CR44.dcm | TestData\GoldStandard\CR44.dcm.caries.json |
| TestData\Images\CR83.dcm | TestData\GoldStandard\CR83.dcm.caries.json |
| TestData\Images\CR98.dcm | TestData\GoldStandard\CR98.dcm.caries.json |
| TestData\Images\CR108.dcm | TestData\GoldStandard\CR108.dcm.caries.json |
| TestData\Images\CR117.dcm | TestData\GoldStandard\CR117.dcm.caries.json |
| TestData\Images\CR128.dcm | TestData\GoldStandard\CR128.dcm.caries.json |
| TestData\Images\CR138.dcm | TestData\GoldStandard\CR138.dcm.caries.json |
| TestData\Images\CR139.dcm | TestData\GoldStandard\CR139.dcm.caries.json |
| TestData\Images\CR145.dcm | TestData\GoldStandard\CR145.dcm.caries.json |
| TestData\Images\VC11.dcm | TestData\GoldStandard\VC11.dcm.caries.json |
| TestData\Images\VC26.dcm | TestData\GoldStandard\VC26.dcm.caries.json |
| TestData\Images\VC28.dcm | TestData\GoldStandard\VC28.dcm.caries.json |
| TestData\Images\VC35.dcm | TestData\GoldStandard\VC35.dcm.caries.json |
| TestData\Images\VC45.dcm | TestData\GoldStandard\VC45.dcm.caries.json |
| TestData\Images\VC60.dcm | TestData\GoldStandard\VC60.dcm.caries.json |
| TestData\Images\VC87.dcm | TestData\GoldStandard\VC87.dcm.caries.json |
| TestData\Images\VC99.dcm | TestData\GoldStandard\VC99.dcm.caries.json |
| TestData\Images\VC106.dcm | TestData\GoldStandard\VC106.dcm.caries.json |
| TestData\Images\VC113.dcm | TestData\GoldStandard\VC113.dcm.caries.json |
| TestData\Images\AK2.dcm | TestData\GoldStandard\AK2.dcm.caries.json |
| TestData\Images\AK48.dcm | TestData\GoldStandard\AK48.dcm.caries.json |
| TestData\Images\AK51.dcm | TestData\GoldStandard\AK51.dcm.caries.json |
| TestData\Images\AK77.dcm | TestData\GoldStandard\AK77.dcm.caries.json |
| TestData\Images\AK82.dcm | TestData\GoldStandard\AK82.dcm.caries.json |
| TestData\Images\AK84.dcm | TestData\GoldStandard\AK84.dcm.caries.json |
| TestData\Images\AK88.dcm | TestData\GoldStandard\AK88.dcm.caries.json |
| TestData\Images\AK89.dcm | TestData\GoldStandard\AK89.dcm.caries.json |
| TestData\Images\AK102.dcm | TestData\GoldStandard\AK102.dcm.caries.json |
| TestData\Images\image21.tif | TestData\GoldStandard\image21.tif.caries.json |
| TestData\Images\image26.tif | TestData\GoldStandard\image26.tif.caries.json |
| TestData\Images\image33.tif | TestData\GoldStandard\image33.tif.caries.json |
| TestData\Images\image37.tif | TestData\GoldStandard\image37.tif.caries.json |
| TestData\Images\image55.tif | TestData\GoldStandard\image55.tif.caries.json |
| TestData\Images\image56.tif | TestData\GoldStandard\image56.tif.caries.json |
| TestData\Images\image60.tif | TestData\GoldStandard\image60.tif.caries.json |
| TestData\Images\image84.tif | TestData\GoldStandard\image84.tif.caries.json |
| TestData\Images\image105.tif | TestData\GoldStandard\image105.tif.caries.json |
| TestData\Images\image127.tif | TestData\GoldStandard\image127.tif.caries.json |

**And**  I compute the {SensitivityD1D2} as sum(TPD1D2) / sum(GSD1D2)

**And**  I compute the {FPPerImage} as mean(FP)

**And**  I compute the {Precision} as sum(TP) / sum(Detections)

**Then**  the {SensitivityD1D2} is at least 0.5

## PerformanceEvaluationStudyImageSet

*(Tags: @NFR002-2, @UR003)*

**Given**  I am logged in with analysis permissions

**When**  I evaluate the images

|  |  |
| --- | --- |
| image | goldstandard |
| TestData\Images\AK2.dcm | TestData\GoldStandard\AK2.dcm.caries.json |
| TestData\Images\AK51.dcm | TestData\GoldStandard\AK51.dcm.caries.json |
| TestData\Images\AK82.dcm | TestData\GoldStandard\AK82.dcm.caries.json |
| TestData\Images\CR44.dcm | TestData\GoldStandard\CR44.dcm.caries.json |
| TestData\Images\CR83.dcm | TestData\GoldStandard\CR83.dcm.caries.json |
| TestData\Images\CR108.dcm | TestData\GoldStandard\CR108.dcm.caries.json |
| TestData\Images\image33.tif | TestData\GoldStandard\image33.tif.caries.json |
| TestData\Images\image37.tif | TestData\GoldStandard\image37.tif.caries.json |
| TestData\Images\image56.tif | TestData\GoldStandard\image56.tif.caries.json |
| TestData\Images\image84.tif | TestData\GoldStandard\image84.tif.caries.json |
| TestData\Images\image127.tif | TestData\GoldStandard\image127.tif.caries.json |
| TestData\Images\JD16.tif | TestData\GoldStandard\JD16.tif.caries.json |
| TestData\Images\ML29.tif | TestData\GoldStandard\ML29.tif.caries.json |
| TestData\Images\ML51.tif | TestData\GoldStandard\ML51.tif.caries.json |
| TestData\Images\ML83.tif | TestData\GoldStandard\ML83.tif.caries.json |
| TestData\Images\RC36.tif | TestData\GoldStandard\RC36.tif.caries.json |
| TestData\Images\RC51.tif | TestData\GoldStandard\RC51.tif.caries.json |
| TestData\Images\TS91.tif | TestData\GoldStandard\TS91.tif.caries.json |
| TestData\Images\TS146.tif | TestData\GoldStandard\TS146.tif.caries.json |
| TestData\Images\TS230.tif | TestData\GoldStandard\TS230.tif.caries.json |
| TestData\Images\TS296.tif | TestData\GoldStandard\TS296.tif.caries.json |
| TestData\Images\TS305.tif | TestData\GoldStandard\TS305.tif.caries.json |
| TestData\Images\VC11.dcm | TestData\GoldStandard\VC11.dcm.caries.json |
| TestData\Images\VC87.dcm | TestData\GoldStandard\VC87.dcm.caries.json |

**And**  I compute the {SensitivityD1D2} as sum(TPD1D2) / sum(GSD1D2)

**And**  I compute the {FPPerImage} as mean(FP)

**And**  I compute the {Precision} as sum(TP) / sum(Detections)

**Then**  the {SensitivityD1D2} is at least 0.5

# EncryptTraffic

*(Tags: @NFR, @NFR001, @UR011, @Security, @WebOnly)*

## WebsiteUsesSSL

*(Tags: @NFR001-1, @UR011-2)*

**Given**  I access the Assistdent web site

**When**  I view the site security information

**Then**  the security indicator reveals SSL

## AllPagesSecured

*(Tags: @NFR001-2, @UR011-2)*

**Given**  I enable network traffic view in developer tools

**When**  I access each main page of the Assistdent web site

**Then**  the request are submitted using https

**And**  the responses returned are received using https

## AnalysisSecured

*(Tags: @NFR001-3, @UR011-2)*

**Given**  I enable network traffic view in developer tools

**When**  I submit an image

**Then**  the request is submitted using https

**And**  the response returned is received using https

# UserData

*(Tags: @NFR, @NFR003, @UR018, @Security)*

## CustomerDataStoredSecurely

*(Tags: @NFR003-1, @DesktopOnly)*

**Given**  I have customers

**Then**  other than on the local computer, customer details are storred securely and exclusively on CryptoLens and Stripe

# AddCariesROI

*(Tags: @UR, @UR008, @Analysis)*

As a dentist

I want to add caries regions of interest at a location I deem dubious

So that I can record for future use and share the results with a patient

## AddCariesROI

*(Tags: @UR008-1)*

**Given**  I submit an image

**When**  I choose a location at which to add a caries ROI to the image

**Then**  the new caries ROI is show on the image

# AllowIPRange

*(Tags: @UR, @UR014, @Security, @WebOnly)*

As an administrator

I want to create, edit and delete whitelisted or Allowed IP Ranges

So that I can allow users accessing from those IP addresses to access analysis functionality without providing credentials

## ListAllowedIPRange

*(Tags: @UR014-1)*

**Given**  I am logged in with admin permissions

**When**  I request the Allowed IP Ranges page

**Then**  a list of allowed ip ranges is displayed

## AddAllowedIPRange

*(Tags: @UR014-2)*

**Given**  I am logged in with admin permissions

**When**  I create an Allowed IP Range for my computer

**Then**  my IP address is included in the list of Allowed IP Ranges

## EditAllowedIPRange

*(Tags: @UR014-3)*

**Given**  I am logged in with admin permissions

**And**  a single Allowed IP Range exists that includes my computer or subdomain's IP address

**When**  I edit the Allowed IP Range for my computer and enter a different computer's IP address

**Then**  the IP address is updated in the list of Allowed IP Ranges

## DeleteAllowedIPRange

*(Tags: @UR014-4)*

**Given**  I am logged in with admin permissions

**And**  a single Allowed IP Range exists that includes my computer or subdomain's IP address

**When**  I delete the Allowed IP Range for my computer

**Then**  the IP address is no longer present in the list of Allowed IP Ranges

## ExpireAllowedIPRange

*(Tags: @UR-14-5)*

**Given**  I am logged in with admin permissions

**And**  a single Allowed IP Range exists that includes my computer or subdomain's IP address

**When**  I set the Expiry Date to be some date in the past

**Then**  the expiry date is updated in the list of Allowed IP Ranges

# BypassLogin

*(Tags: @UR, @UR013, @Security, @WebOnly)*

As a dentist at an institution

I want to bypass the standard login security

So that I can access functionality immediately

And so that I can access functionality from any computer at the institution without entering credentials

## ConnectFromAllowedIP

*(Tags: @UR013-1)*

**Given**  I am using a computer within an allowed IP range

**And**  I am logged out of the application

**When**  I request the analysis page

**Then**  the analysis page is displayed

**When**  I submit an image

**Then**  the image and results are displayed

## ConnectFromOtherIP

*(Tags: @UR013-2)*

**Given**  I am using a computer that isn't included within an allowed IP range

**And**  I am logged out of the application

**When**  I request the analysis page

**Then**  the login page is displayed

## ConnectFromExpiredIP

*(Tags: @UR013-3)*

**Given**  I am using a computer within an allowed IP range but an expiry date in the past

**And**  I am logged out of the application

**When**  I request the analysis page

**Then**  the login page is displayed

# CommandLineInterface

*(Tags: @UR, @UR024, @Integration, @DesktopOnly)*

As a third-party developer

I want to be able to pass command line arguments to AssistDent

So that I can instruct it to analyze specific images

And display custom info

## SubmitImage

*(Tags: @UR024-1)*

**When**  I submit an image filename to AssistDent from a third-party

**Then**  AssistDent analyses the specified image

**And**  displays the correct patient name

# ControButtonToolTips

*(Tags: @UR, @UR010, @Labelling, @WebOnly)*

As a dentist

I want to be given indications of what the control buttons means

so that I can understand the functionality

## ControButtonToolTips

*(Tags: @UR010-1)*

**Given**  I have submitted an image

**When**  I hover over the results buttons below the image

**Then**  tool-tips appear to indicate the function of each button

# CustomerPayment

*(Tags: @UR, @UR029, @DesktopOnly, @Admin)*

As a company

We want to accept payment for subscriptions to AssistDent

So we can make money

## TakePaymentUK

*(Tags: @UR029-1)*

**Given**  I have register a trial licence for a UK user

**When**  I access the purchase licence page

**And**  choose the default price

**Then**  the payment is in GBP

**And**  UK VAT is applied

## TakePaymentEU:

*(Tags: @UR029-2)*

**Given**  I have register a trial licence for an EU user

**When**  I access the purchase licence page

**And**  choose the default price

**Then**  the payment is in Euros

**And**  UK VAT is not applied

## ViewInvoiceUK:

*(Tags: @UR029-3)*

**Given**  I have paid for a subscription for a UK user

**When**  I access my billing portal

**Then**  I can view an invoice for each month

**And**  the invoice contains the price paid

**And**  the invoice contains the customer name and address

**And**  the invoice contains the VAT amount

**And**  the invoice contains the MIL VAT number

## ViewInvoiceEuro:

*(Tags: @UR029-4)*

**Given**  I have paid for a subscription for an EU user

**When**  I access my billing portal

**Then**  I can view an invoice for each month

**And**  the invoice contains the price paid

**And**  the invoice contains the customer name and address

**And**  the invoice contains a statement regarding reverse tax

# DeleteCariesROI

*(Tags: @UR, @UR006, @Analysis)*

As a dentist

I want to delete caries regions of interest that I judge to be incorrect

So that I can share the results with a patient without showing false positives

## DeleteCariesROI

*(Tags: @UR006-1)*

**Given**  I submit an image

**And**  the image contains caries ROIs

**When**  I select one or more caries ROIs

**And**  delete them

**Then**  the caries ROIs are removed from the image

# DesktopLicensing

*(Tags: @UR, @UR025, @Admin, @DesktopOnly)*

As a company

We want to issue users with a licence key

So that we can restrict users to free trials and paying customers

## RegisterTrialLicence

*(Tags: @UR025-1)*

**Given**  no licence is registered for the current machine

**When**  I start the desktop app

**Then**  I am required to complete user registration

**And**  the application starts

**And**  a customer is created on CryptoLens with the correct details

**And**  a customer is created on Stripe with the correct details

## LicenceExpired

*(Tags: @UR025-2)*

**Given**  a licence is registered for the current machine

**And**  that licence has expired

**When**  I start the desktop app

**Then**  the app does not start

## LicenceUpgrade

*(Tags: @UR025-3)*

**Given**  a licence is registered for the current machine

**And**  that licence has expired

**When**  I start the desktop app

**Then**  I am directed to the store website to purchase a Licence

**And**  there is an appropriate choice of purchase options for me

## ValidLicence

*(Tags: @UR025-4)*

**Given**  a licence is registered for the current machine

**And**  that licence has not expired

**When**  I start the desktop app

**Then**  the desktop app starts

## DisplayLicence

*(Tags: @UR025-5)*

**Given**  a licence is registered for the current machine

**And**  that licence has not expired

**Then**  the licence key can be seen in the application

**And**  the licence expiry date can be seen in the application

## EnterNewLicenceKey

*(Tags: @UR025-6)*

**Given**  a valid licence is registered for the current machine

**When**  I enter a new valid licence key

**And**  restart the application

**Then**  the application starts

**And**  the application uses the new licence key

## PurchaseLicence

*(Tags: @UR025-7)*

**Given**  that I have been directed to the store website to purchase a license

**When**  I purchase a license

**Then**  the license expiry date is extended as specified by the product

## ChangeTrialPeriod

*(Tags: @UR-25-8)*

**Given**  a licence is not generated for the current machine

**When**  I configure the store app to generate a 1 day licence

**And**  I register for a trial licence

**Then**  the licence expiry date can be seen in the application

**And**  the expiry date is in 1 day

# DisplayCariesDetection

*(Tags: @UR, @UR002, @Analysis)*

As a dentist

I want to see which teeth have been detected and analyzed for caries

So that I can check for caries manually on undetected teeth

## TeethIndicatorsAreDisplayed

*(Tags: @UR002-1)*

**When**  I submit an image

**Then**  the detected teeth are indicated on the image

# DisplayCariesDetection

*(Tags: @UR, @UR003, @Analysis)*

As a dentist

I want to view caries regions of interest on a bitewing image

So that I can see where early stage decay is ocurring

## ROIIndicatorsAreDisplayed

*(Tags: @UR003-1)*

**When**  I submit an image

**Then**  the detected caries ROIs are indicated

## ROIIndicatorsAreEasilyVisible

*(Tags: @UR003-2)*

**When**  I submit an image

**Then**  the detected caries ROIs are indicated

**And**  the detected caries ROI indicators are easily visible

# DisplayImage

*(Tags: @UR, @UR001, @Analysis)*

As a dentist

I want to view one or more bitewing images

So that when caries detection is performed I can view the results in place over the analyzed images

## ImageIsDisplayed

*(Tags: @UR001-1)*

**When**  I submit an image

**Then**  the image is displayed on screen

## MultipleImagesDisplayed

*(Tags: @UR001-2, @WebOnly)*

**When**  I submit 4 images

**Then**  all 4 images are displayed on screen

# EnterFeedback

*(Tags: @UR, @UR021, @Admin, @WebOnly)*

As a user

I want to enter feedback comments

So that I can tell Manchester Imaging what I think of assistdent.net

## UserCanEnterFeedback

*(Tags: @UR021-1)*

**Given**  I have logged in with analysis permissions

**When**  I access the feedback page

**Then**  I can enter a comment

## AllowedIPCanEnterFeedback

*(Tags: @UR021-2)*

**Given**  I have accessed from an allowed IP address

**When**  I access the feedback page

**Then**  I can enter a comment

# ExpandImage

*(Tags: @UR, @UR005, @Analysis, @WebOnly)*

As a dentist

I want to expand the image view to view full screen

So that I can see potentially affected areas in more detail

And I can share the image with a patient

## ExpandImageToFullScreen

*(Tags: @UR005-1)*

**Given**  I submit an image

**When**  I expand the image view

**Then**  the image is displayed using as much of the screen as possible

## ExitFullScreen

*(Tags: @UR005-2)*

**Given**  I am viewing an image in full screen

**When**  I collapse the image view

**Then**  the image is displayed in preview/tile view

# FeatureTour

*(Tags: @UR, @UR012, @Labelling, @WebOnly)*

As a dentist

I want to take a tour of features

So that I can learn how to use assistdent.net

## TakeTourOfFeatures

*(Tags: @UR012-1)*

**When**  I follow a link to the tour

**Then**  a tour of features is started

**And**  submission is introduced

**And**  display is introduced

**And**  magnify is introduced

**And**  hide/display annotation is introduced

**And**  delete is introduced

**And**  flip is introduced

**And**  add is introduced

**And**  full screen is introduced

# ImageID

*(Tags: @UR, @UR023, @Analysis, @WebOnly)*

As a user

I want to be able to see the filename name next to the image

And be able to edit that ID to whatever text I wish

So that I can identify and label any of the images on the analysis page

And confirm that I submitted the correct image for analysis

## ShowImageIDAsFilename

*(Tags: @UR023-1)*

**Given**  I have submitted an image for analysis

**When**  the image is displayed

**Then**  the ID of the image is shown

**And**  set as the image filename

## EditImageID

*(Tags: @UR023-2)*

**Given**  I have submitted an image for analysis

**When**  I hover over the ID of the image

**Then**  A box appears around the ID

**And**  I am able to edit the ID field and change to different value

# LegalLabelling

*(Tags: @UR, @UR015, @Labelling)*

As a regulator

I want to view the legal and safety information regarding AssistDent

So that AssistDent can be used legally and safely on patients

## DisplayLegalInformation

*(Tags: @UR015-1)*

**When**  I request the clinical use information

**Then**  the information includes the UDI Device Identifier

**And**  the information includes the CE mark

**And**  the information includes the manufacturer details

**And**  the information includes the CE representative details

**And**  the information includes the date of manufacture

**And**  the information includes the intended of use

**And**  the information includes the indications for use

**And**  the information includes the contraindications

**And**  the information includes the warnings and precautions

# LogDetections

*(Tags: @UR, @UR019, @Security, @WebOnly)*

As an admin

I want to view size, dimensions, analysis time and source IP address of detections by username

So that I can see how often and when detections are being performed under each account

As an admin

I want to view size, dimensions, analysis time and source IP address of detections by Allowed IP

So that I can see how often and when detections are being performed from an Allowed IP range

## CanAccessUserDetections

*(Tags: @UR019-1)*

**Given**  I have logged in with admin permissions

**When**  I access the Details page for an individual user

**Then**  I can see a list of detections

**And**  I can see the date and time of the detection

**And**  I can see the size and dimensions of the analysed image

**And**  I can see the IP address from which the detection was made

## CanAccessAllowedIPDetections

*(Tags: @UR019-2)*

**Given**  I have logged in with admin permissions

**When**  I access the Details page for an individual Allowed IP

**Then**  I can see a list of detections

**And**  I can see the date and time of the detection

**And**  I can see the size and dimensions of the analysed image

**And**  I can see the IP adderss from which the detection was made

# MagnifyImage

*(Tags: @UR, @UR004, @Analysis)*

As a dentist

I want to zoom in on a selected area of the image

So that I can see potentially affected areas in more detail

## MagnifierOnImage

*(Tags: @UR004-1)*

**Given**  I submit an image

**And**  the image is displayed on screen

**When**  I hold the left mouse button down

**Then**  a portion of the image is displayed at a higher magnification

## HideAnnotationOnMagnify

*(Tags: @UR004-2)*

**Given**  I submit an image

**And**  I activate the magnifier

**When**  I move the mouse cursor over a caries ROI indicator

**Then**  the indicator is hidden in the magnified view

**When**  I move the mouse cursor over a tooth indicator

**Then**  the indicator is hidden in the magnified view

# ManageUserLogins

*(Tags: @UR, @UR018, @Security, @WebOnly)*

As an administrator

I want to create, view and delete user accounts

So that I can grant individuals access to analysis functionality

## ListUsers

*(Tags: @UR018-1)*

**Given**  I am logged in with admin permissions

**When**  I request the Manage Users page

**Then**  a list of users is displayed

## AddUser

*(Tags: @UR018-2)*

**Given**  I am logged in with admin permissions

**When**  I create an User

**And**  choose a valid Password of at least 6 characters

**And**  choose a valid Password with at least one lowercase, capital and number

**Then**  my User is included in the list of users

## DeleteUser

*(Tags: @UR018-3)*

**Given**  I am logged in with admin permissions

**And**  a single User exists

**When**  I delete the User for my computer

**Then**  the User is no longer present in the list of users

# ProtectPatientData

*(Tags: @UR, @UR011, @Security, @WebOnly)*

As a dentist

I want to anonymise DICOM images before I send them to Manchester Imaging

So that I can keep my patients' identities private

As a dentist

I want to encrypt image data when sent to Manchester Imaging

So that I can prevent my patients' image data being intercepted en route

## AnonymiseDicomData

*(Tags: @UR011-1)*

**When**  I submit a DICOM image file for analysis

**Then**  the DICOM file when read on the server contains no patient identifying data

## SecureAllTraffic

*(Tags: @UR011-2)*

**When**  I load the Assistdent web page

**Then**  the page is accessible only via https

**And**  the connection is secure

# RepositionCariesROI

*(Tags: @UR, @UR009, @Analysis)*

As a dentist

I want to be able to reposition and change arrow indicator directions

so that I can indicate alternative regions that I believe to be carious

## MoveCariesROI

*(Tags: @UR009-2)*

**Given**  I have submitted an image

**And**  the image contains at least one ROI

**When**  I click-and-drag with the mouse button on an ROI

**Then**  the ROI is moved to the the new location

## FlipCariesROI

*(Tags: @UR009-2)*

**Given**  I submit an image

**And**  the image contains caries ROIs

**When**  I select one or more caries ROIs

**And**  flip its direction

**Then**  the caries ROIs direction is flipped horizontally

# RestrictAccess

*(Tags: @UR, @UR028, @DesktopOnly, @Admin)*

As a company

We want to obstruct access to AssistDent in certain territories

So that it can only be used in territories where we have regulatory clearance

## CanUseInEU

*(Tags: @UR028-1)*

**Given**  no licence is registered for the current machine

**When**  I start AssistDent

**And**  I enter details including country name "Denmark"

**Then**  I can register

**And**  AssistDent starts

## CanUseInUK

*(Tags: @UR028-2)*

**Given**  no licence is registered for the current machine

**When**  I start AssistDent

**And**  I enter details including country name "United Kingdom

**Then**  I can register

**And**  AssistDent starts

## CannotUseIn

*(Tags: @UR028-3)*

**Given**  no licence is registered for the current machine

**When**  I start AssistDent

**And**  I enter details including country name "United States"

**Then**  I cannot register

**And**  AssistDent does not start

# SeeWhatsNew

*(Tags: @UR, @UR027, @DesktopOnly, @Analysis)*

As a user

I want to be made aware of new features

So that I know what's changed

## SeeNewFeaturesOnStartup

*(Tags: @UR027-1)*

**Given**  I have not dismissed the news for the version installed

**When**  I start AssistDent

**Then**  the new features are displayed

## StopSeeingNewFeatures

*(Tags: @UR027-2)*

**Given**  I have not dismissed the news for the version installed

**And**  I start AssistDent

**And**  the new features are displayed

**When**  I dismiss/request the new features are no longer displayed

**And**  I restart AssistDent

**Then**  AssistDent restarts

**And**  the new features are not dismissed

## SeeNewFeaturesAfterStartup

*(Tags: @UR027-3)*

**Given**  I have started AssistDent

**When**  I access the new features

**Then**  the new features are displayed

# ShowProgress

*(Tags: @UR, @UR026, @Analysis)*

As a user

I want confirmation that AssistDent is performing caries detection

So that I can wait for the analysis to complete

## ShowAnalysisProgress

*(Tags: @UR026-1)*

**When**  I perform caries detection

**Then**  the analysis status is reported at relevant stages

# SubmitImages

*(Tags: @UR, @UR016, @Analysis, @WebOnly)*

As a dentist

I want to submit one or more images for analysis

So that I can request caries detection on my patients' images

## SubmitSingleImage

*(Tags: @UR016-1)*

**Given**  I am authorized with analysis permissions

**And**  I navigate to the Analysis page

**When**  I browse for a single bitewing image

**Then**  the image is sent

**And**  the image is displayed

**And**  results are displayed

## SubmitMultipleImages

*(Tags: @UR016-2)*

**Given**  I am authorized with analysis permissions

**And**  I navigate to the Analysis page

**When**  I browse and select 2 bitewing images

**Then**  the images are sent

**And**  the images are displayed

**And**  results for both images are displayed

## SubmitTiffImage

*(Tags: @UR016-3)*

**Given**  I am authorized with analysis permissions

**And**  I navigate to the Analysis page

**When**  I browse for a single tiff bitewing image

**Then**  the image is sent

**And**  the image is displayed

**And**  results are displayed

## SubmitDICOMImage

*(Tags: @UR016-4)*

**Given**  I am authorized with analysis permissions

**And**  I navigate to the Analysis page

**When**  I browse for a single DICOM bitewing image

**Then**  the image is sent

**And**  the image is displayed

**And**  results are displayed

# ToggleAnnotationVisibility

*(Tags: @UR, @UR007, @Analysis)*

As a dentist

I want to hide all annotation

So that I can review the image grade and look for other conditions

## HideImageAnnotation

*(Tags: @UR007-1)*

**Given**  I submit an image

**And**  the image contains caries ROIs

**When**  I hide the annotation

**Then**  the tooth and caries ROI indicators are hidden from view

## RestoreImageAnnotation

*(Tags: @UR007-2)*

**Given**  I submit an image

**And**  the image contains caries ROIs

**And**  I have hidden the annotation

**When**  I restore the annotation

**Then**  the tooth and caries ROI indicators are displayed

# UpgradeClient

*(Tags: @UR, @UR024, @Admin, @DesktopOnly)*

As a user

I want to know when updates are available to the desktop client

So that I can keep the software up to date

And use the best performing algorithms

## CheckForUpdatesNoneAvailable

*(Tags: @UR024-1)*

**Given**  updates are not available

**When**  I start the desktop app

**Then**  the app starts normally

## CheckForUpdatesWhenAvailable

*(Tags: @UR024-2)*

**Given**  updates are available

**When**  I start the desktop app

**Then**  the user is informed of the availability of an update

## DownloadUpdate

*(Tags: @UR024-3)*

**Given**  updates are available

**When**  I start the desktop app

**Then**  the app starts the user is directed to the updated installer

# UsernameLogin

*(Tags: @UR, @UR017, @Security, @WebOnly)*

As a dentist

I want to authenticate myself using a username and password

So that I can perform analyses from any remote computer

## LoginWithUsername

*(Tags: @UR017-1)*

**Given**  I am logged out

**And**  I have Analysis user role

**When**  I request login

**And**  enter my username and password

**Then**  I can access the analysis page

## LoginWithUsernameWithoutAnalysisRole

*(Tags: @UR017-2)*

**Given**  I am logged out

**And**  I do not have Analysis user role

**When**  I request login

**And**  enter my username and password

**Then**  I cannot access the Analysis page

# ViewAnalysisProgress

*(Tags: @UR, @UR022, @Analysis, @WebOnly)*

As a user

I want to view the progress of my image upload, and the subsequent analysis

So that I can see the application is responding to my request

## UserCanViewUploadProgress

*(Tags: @UR022-1)*

**Given**  I have logged in with analysis permissions

**When**  I submit an image for analysis

**Then**  I can see a progress indicator to show file upload progress

**And**  it indicates how much of the file has been uploaded

## UserCanViewAnalysisProgress

*(Tags: @UR022-2)*

**Given**  I have logged in with analysis permissions

**And**  I have submitted an image for analysis

**When**  the file upload completes

**And**  the image is visible

**Then**  I can see a progress indicator to show analysis progress

# ViewFeedback

*(Tags: @UR, @UR020, @Admin, @WebOnly)*

As Manchester Imaging

We want to view feedback comments by user or allowed ip

So that we can see how a user/group of users feel about assistdent.net

## CanAccessUserFeedback

*(Tags: @UR020-1)*

**Given**  I have logged in with admin permissions

**When**  I access the Details page for an individual user

**Then**  I can see a list of feedback comments

**And**  I can see the date of each comment

## CanAccessAllowedIPFeedback

*(Tags: @UR020-2)*

**Given**  I have logged in with admin permissions

**When**  I access the Details page for an individual Allowed IP

**Then**  I can see a list of feedback comments

**And**  I can see the date of each comment