



Feature Extraction 12.1

Quick Start Guide

For Research Use Only. Not for use in diagnostic procedures.

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This Quick Start Guide provides an overview of how to use the Feature Extraction 12.1 software. Step-by-step instructions are given for how to start the software and run an extraction.

This guide assumes that you have already installed Feature Extraction 12.1 and its license on your computer. For information on how to install Feature Extraction 12.1, see the *Feature Extraction Installation Guide*.

For a complete description of the Feature Extraction main window and its components, see the *Feature Extraction 12.1 Users Guide*.



Agilent Technologies

What Is Agilent Feature Extraction Software?

Agilent Feature Extraction 12.1 software automatically reads and processes up to 100 raw microarray image files in the batch mode. Real-time extraction occurs as soon as the Agilent scanner produces a TIFF image. The software finds and adjusts microarray grids, rejects outlier pixels, accurately calculates feature intensities and ratios, flags outlier features, and calculates statistical confidences. Application-specific QC reports summarize multiple analyses.

Agilent Feature Extraction software extracts data from microarray images produced in the following different situations:

- Agilent microarrays scanned on an Agilent scanner
- Non-Agilent microarrays scanned on an Agilent scanner
- Agilent microarrays scanned on a supported non-Agilent scanner (i.e. Roche NimbleGen MS 200 scanners, Molecular Devices GenePix scanners, select Innopsys InnoScan scanners, and select Tecan scanners)

Feature Extraction handles each of these images differently. These differences are described throughout the documentation.

If you are a new user

Read [“Getting Help”](#) on page 4 and [“Starting the Software and Setting up eArray”](#) on page 7.

If you intend to analyze...

- Saved images (Agilent or non-Agilent), read the [“Instructional overview”](#) on page 14.
- Agilent images in real-time, read the [“Instructional overview”](#) on page 25, and go to [“General Instructions”](#) on page 26.

If you are an experienced user

Read [“What’s New in Version 12.1?”](#) on page 6.

To download updates manually

When Feature Extraction is installed, Feature Extraction protocols and QC metric sets are also installed. Grid templates are not included with the installation. If you set up an eArray login, the software automatically downloads and updates the necessary grid templates and Feature Extraction protocols from the eArray server. You can also go to the following websites to download updates manually.

The following are some useful Agilent websites:

<https://earray.chem.agilent.com/earray> - To register for eArray account

<https://www.agilent.com/genomics/suredesign> - To register for a SureDesign account

<http://www.genomics.agilent.com/article.jsp?pageId=2037> - To download Feature Extraction protocols

<http://www.agilent.com/chem/designfile> - To download grid templates

<http://www.genomics.agilent.com/article.jsp?pageId=2040> - To download QC metric sets

Getting Help

To get help for Feature Extraction

The following table lists the resources available in the **Help** menu on the Feature Extraction menu bar. Guides are in PDF format, and require a PDF viewer such as Adobe Reader.

| Help Resource | Description/Instructions |
|--------------------------------------|---|
| Feature Extraction Quick Start Guide | This guide, which you are reading, gives you an overview of the Feature Extraction software. To open this guide from within Feature Extraction, click Help > Quick Start Guide . |
| Feature Extraction User Guide | <p>A comprehensive guide for using the Feature Extraction software, that includes the following chapters:</p> <ul style="list-style-type: none"> • Chapter 1– Working with Feature Extraction • Chapter 2– Extracting Microarrays Automatically • Chapter 3– Creating Grid Files and Templates • Chapter 4– Changing Protocol Settings • Chapter 5– Changing Image Displays <p>To open this guide from within Feature Extraction, click Help > User Guide.</p> |
| Feature Extraction Reference Guide | <p>A reference guide that contains information about protocols, QC reports, results, and algorithms, that includes the following chapters:</p> <ul style="list-style-type: none"> • Chapter 1 – Default Protocol Settings • Chapter 2 – QC Report Results • Chapter 3 – Text File Parameters and Results • Chapter 4 – MAGE-ML Results • Chapter 5 – How Algorithms Calculate Results • Chapter 6 – Command Line Feature Extraction <p>To open this guide from within Feature Extraction, click Help > Reference Guide.</p> |
| Technical Support | <p>Opens a link to the Agilent Technical Support website. Here, you can find literature and manuals, view Frequently Asked Questions, and download updates and revision information. There is also a Contact Us link where you can locate the technical support phone number or send an e-mail message to technical support for your country.</p> |

| Help Resource | Description/Instructions |
|-------------------------------|---|
| Feature Extraction Training | Opens a link to the Feature Extraction Tutorials website, where you can view a number of self paced instructional tutorials. To open this website from within Feature Extraction, click Help > Feature Extraction Training . |
| Feature Extraction on the Web | Opens a menu that provides links to the following: <ul style="list-style-type: none">• Array annotation – Find available design files by barcode• Feature Extraction Software – Feature Extraction software downloads and information• Feature Extraction Protocols – Download current and previous versions of Feature Extraction protocols |
| Agilent License | Opens the Agilent software license redemption website, where you use your entitlement certificate to redeem your software license. |
| Memory Status | Opens an information window that shows how much computer memory is currently available and how much memory is in use. |
| About | Opens an information window that shows your Feature Extraction version, license, and database information. This window also displays your computer Host ID. To redeem your license, you need your Host ID. |

To learn about Agilent products and services

To view information about the Genomics products and services that are available from Agilent, go to www.agilent.com/genomics.

What's New in Version 12.1?

Feature Extraction 12.1 includes an enhanced algorithm for automatic gridding of Agilent CGH array images. These enhancements were designed to improve automatic gridding in array images of lower quality, including those with non-linear features. Array images that may have previously received a “failed grid” error and require manual gridding can now be processed successfully using the enhanced algorithm. See the *Feature Extraction 12.1 Reference Guide* for information on the use of the enhanced gridding algorithm in the default protocols. The previous gridding algorithm is still available and supported. See the *Feature Extraction 12.1 User Guide* for instructions on enabling or disabling the algorithm enhancements in your own imported or custom protocols.

Starting the Software and Setting up eArray

To start the software from Windows

- Double-click the **Feature Extraction** shortcut on your desktop.
This shortcut was created when the Feature Extraction software was installed.
OR
- From Windows, click **Start > All Programs > Agilent Feature Extraction 12.1.x.x > Agilent Feature Extraction 12.1.x.x**.

NOTE

To use Feature Extraction, install a valid license. If you do not have a license installed, you see a message.

To set up a Feature Extraction license

Redeem your software licenses

To obtain your Feature Extraction license:

- 1 Start the Feature Extraction software and select **Help > Agilent License**.

Have the following items available:


- **Software Entitlement Certificate (SEC)** - This PDF contains the Order Number and Certificate Number that you provide to redeem your purchased license.
 - **Host ID** - This ID can be found under the menu Help > About. You provide the host ID to redeem your purchased license.
- 2 Follow the instructions on the Agilent Software License Redemption website to redeem your purchased license.

After redeeming the license online, you will receive an e-mail message with the license attached.

Save the unzipped license file to the folder on the drive where you installed the software.

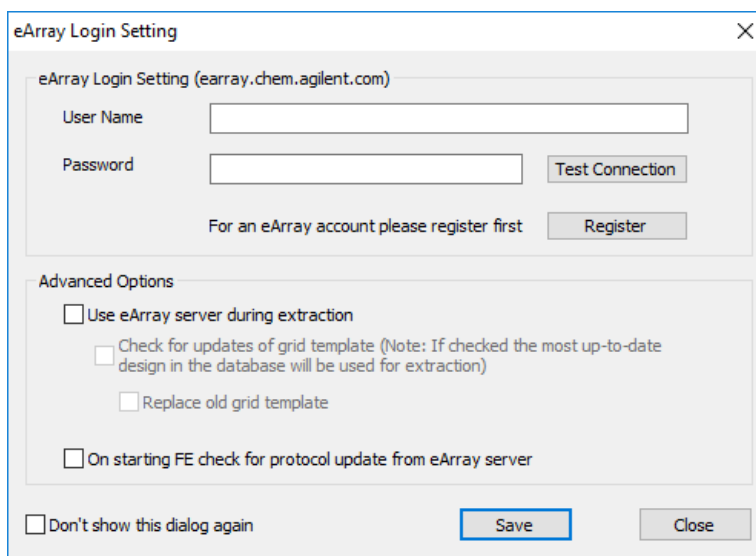
To set up eArray login

Set up the license from Feature Extraction

- 1 Start the Feature Extraction software, if it is not already running.
If the Feature Extraction software is already running (unlicensed), click the **New Project** icon. 
- 2 A message appears that informs you that you do not have a valid license installed. Click **Retry**.
The Select Agilent Feature Extraction License File dialog box opens.
- 3 Find the folder that contains the license file.
- 4 Select the license file (.lic), and click **Open**.

To set up eArray login

When you first open Feature Extraction, the **eArray Login Setting** window appears on top of the Feature Extraction main window. If you do not see the eArray Login Setting window, you can access it using **Tools > eArray settings**.



eArray Login Setting

eArray Login Setting (earray.chem.agilent.com)

User Name

Password Test Connection

For an eArray account please register first Register

Advanced Options

Use eArray server during extraction

Check for updates of grid template (Note: If checked the most up-to-date design in the database will be used for extraction)

Replace old grid template

On starting FE check for protocol update from eArray server

Don't show this dialog again Save Close

Figure 1 eArray Login Setting dialog box

Feature Extraction connects to the Agilent eArray server automatically. It downloads, installs, and uses the required grid templates, Feature Extraction protocols, and QC metric sets during extraction.

It is highly recommended that you set up an eArray login to take advantage of this feature *before* you run the extraction project.

NOTE

To log in to eArray, an internet connection is required.

- 1 Type your eArray **User Name** and **Password** in the eArray Login Setting window, if you already have an existing eArray account. Tip: The user name is the e-mail address you provided when you created an eArray account.

If you do not have an eArray account, first register for one. To start the registration process, click **Register**. This link opens the Agilent eArray registration website where you can request a free eArray account. Follow the instructions provided on the eArray website to complete the registration.

- 2 Click **Test Connection**. The message “Login Successful!!!” is displayed if the connection to the eArray server is successful. If you get the message “Login denied”, check that the user name and password you typed are correct.
- 3 Under Advanced Options, select the appropriate boxes:
 - **Use eArray server during extraction**

Select this check box to log in to the eArray server. Feature Extraction downloads, install, and use grid templates (design files), Feature Extraction protocols, and QC metric sets automatically during extraction.
 - **Check for updates of grid template**

Select this check box to download updates to existing grid templates already in the Grid Template Browser. Updated grid templates are added to the database, leaving existing grid templates, unless you mark **Replace old grid template**. When selected, the newest grid template in the database is used for feature extraction.

To set up eArray login

If several versions of a design are in the database and you want to do an extraction using an older design, clear this box. Otherwise, the extraction automatically uses the most recent version of the design (whether you are using the eArray server during extraction or not.)

- **Replace old grid template**

When you select this check box, Feature Extraction replaces old grid templates in the Grid Template Browser with the latest ones from the eArray server.

- **On starting Feature Extraction check for protocol update from eArray server**

Select this box to download updates from the eArray server for existing default protocols and QC metric sets in the FE Protocol Browser.

- 4 To save the eArray login settings, click **Save**. You see a message “Setting updated successfully”. Click **OK** to close the message, and click **Close** to exit the eArray Login Setting window.

Now you see the Feature Extraction main window.

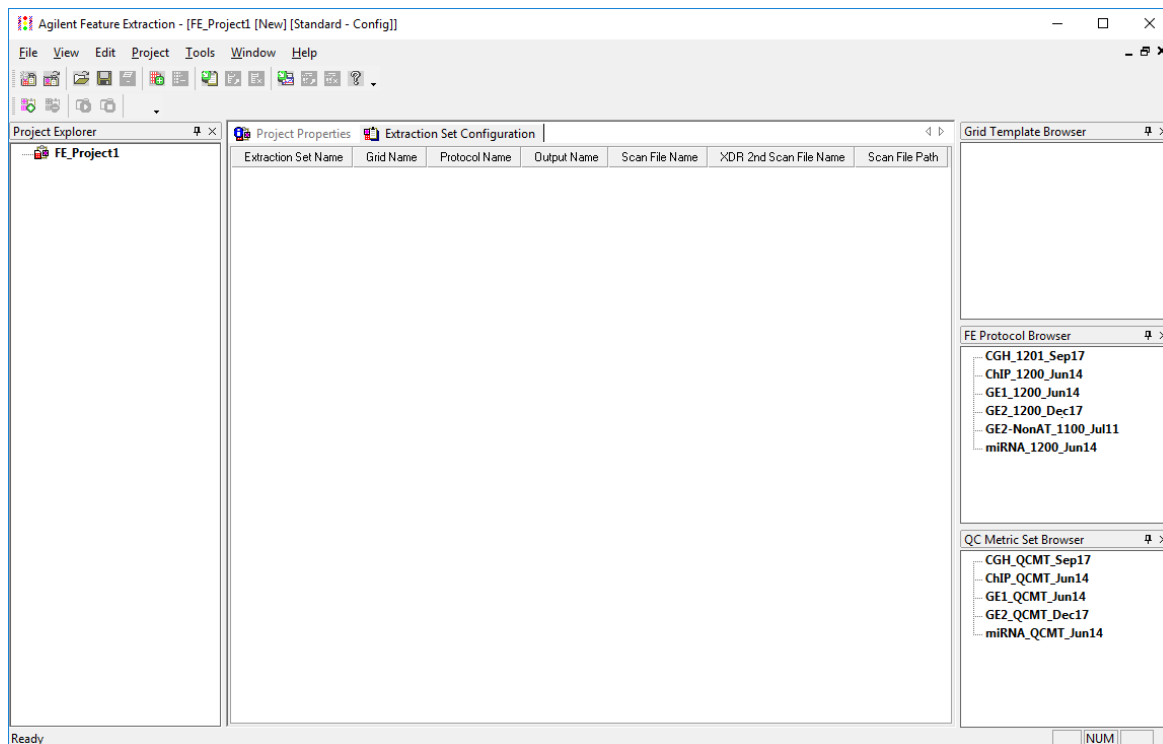


Figure 2 Feature Extraction Main Window

To open an image file

To open an image file

- 1 With the Feature Extraction main window open, click **File > Open > Image**, and browse to the folder that contains the image file. Double-click the image file (.tif) that you want to open.

If the Feature Extraction software is running, you can also “drag and drop” the image from your folder to the open Feature Extraction window.

If you do not have the Feature Extraction software running, you can also open an image file by dragging and dropping an image file to the Feature Extraction shortcut on your desktop.

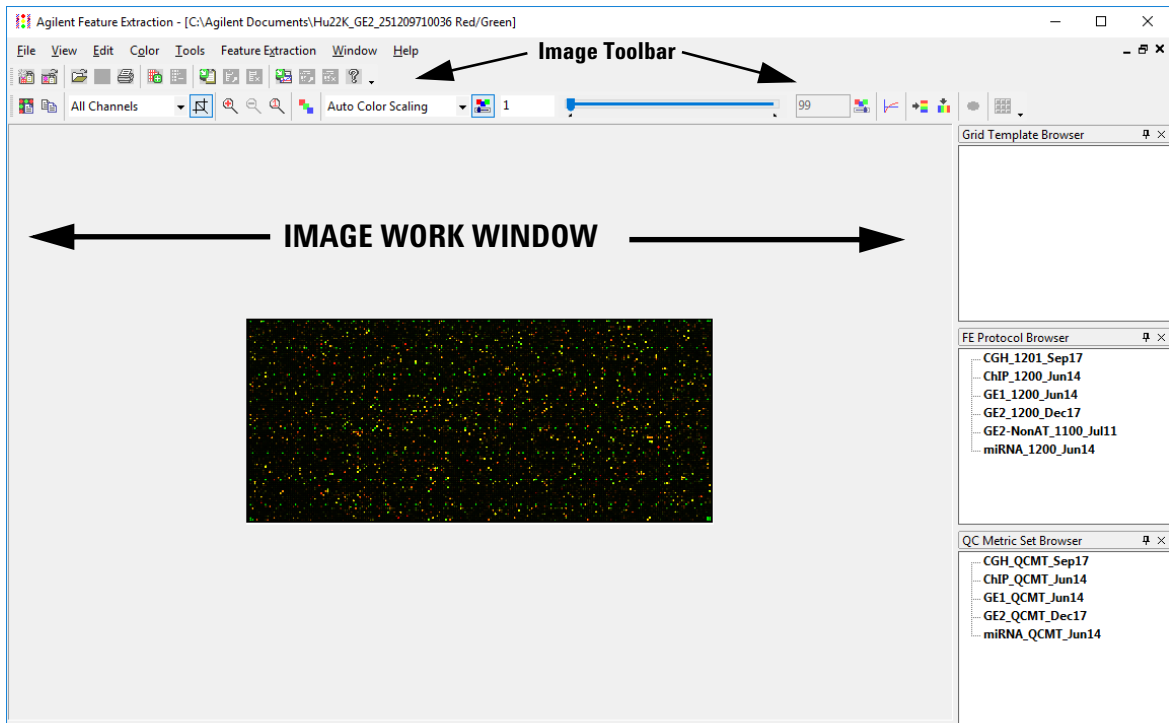


Figure 3 Feature Extraction main window with open image

NOTE

For high-resolution images (2- or 3-micron or 20-bit), you see a low-resolution preview image until you crop to roughly 1/10 of the preview image size. Then you see the original high-resolution image. [The Crop Cursor turns red when you are outside the high-resolution (High Fidelity) region.]

To learn more about interactively finding spots and creating grid files for non-Agilent images, see Chapter 3, “Creating Grid Files”, in the *Feature Extraction 12.1 User Guide*.

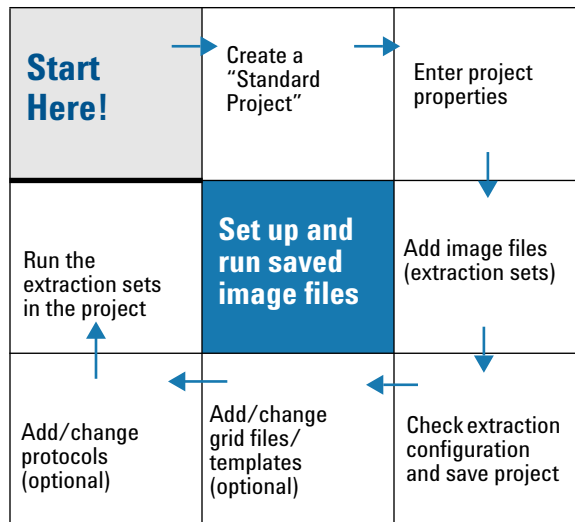
To learn more about changing the image display, see Chapter 5, “Changing Image Displays”, in the *Feature Extraction 12.1 User Guide*.

Setting up a Standard Project to Extract Agilent and Non-Agilent Image Files

Instructional overview

Follow the road map shown here and the instructions on the next pages to get started.

See Chapter 2 in the *Feature Extraction 12.1 User Guide* for details on this task.



The Agilent Feature Extraction software works with Agilent or non-Agilent microarray images produced on Agilent scanners using projects, extraction sets, grid templates or files, and protocols. The images are organized into extraction sets that contain the grid and protocol information to run the extraction. The extraction sets, in turn, are organized into projects. Note that for non-Agilent images, the program converts the images when they are added to an extraction set.

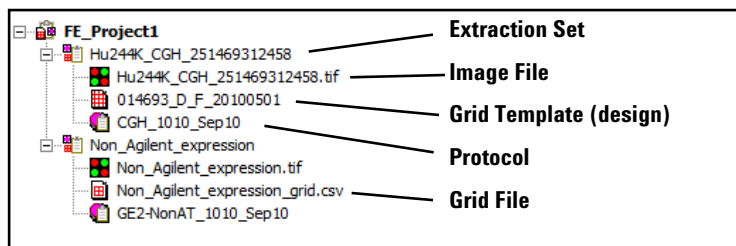


Figure 4 Project Explorer with expanded extraction sets

- project** A grouping of information that contains one or more *extraction sets* that define the files to use in the extraction.
- extraction set** Each group that contains a microarray image file, grid template (or grid file) and protocol within a project. This term is used both before and after extraction.
- grid template** Grid information from Agilent design files or grid files stored in the database. A grid template includes feature annotation and general geometry about the microarray (number of rows, columns, subgrids, feature spacings), used to find spots before data analysis takes place. Although not specific to any microarray image, grid template information is usually applied to the image for which the template was designed.
- grid file** Grid files are required to do feature extraction for non-Agilent images. Rarely, the automatic grid placement of Agilent images using a grid template produces an incorrect grid. If this happens, supply a user-generated grid file. When using a grid file, extraction uses the nominal and “found” spot locations specific to the image from which the grid file was created. Grid files are created in the Feature Extraction program using a microarray image file and a microarray layout file (such as an Agilent Design file or a .GAL [GenePix Array List] file). If the “Calculate spot size and centroids” option is run before the file is saved, the grid file contains the locations of the “found” spots. You can create grid templates from grid files, although the templates have only geometry information, no found spots.
- protocol** A list of steps and parameter values that define the data analysis algorithms and calculations used for feature extraction of a microarray image or images.

General instructions

Step 1. Create a Standard Project

- If the Feature Extraction software is not already running, start the program from your desktop or from the Windows Start menu.

Feature Extraction automatically creates a standard project (FE_Project1) every time you start the program. The Feature Extraction main window appears with the Project1 work window and an empty Extraction Set Configuration tab window.

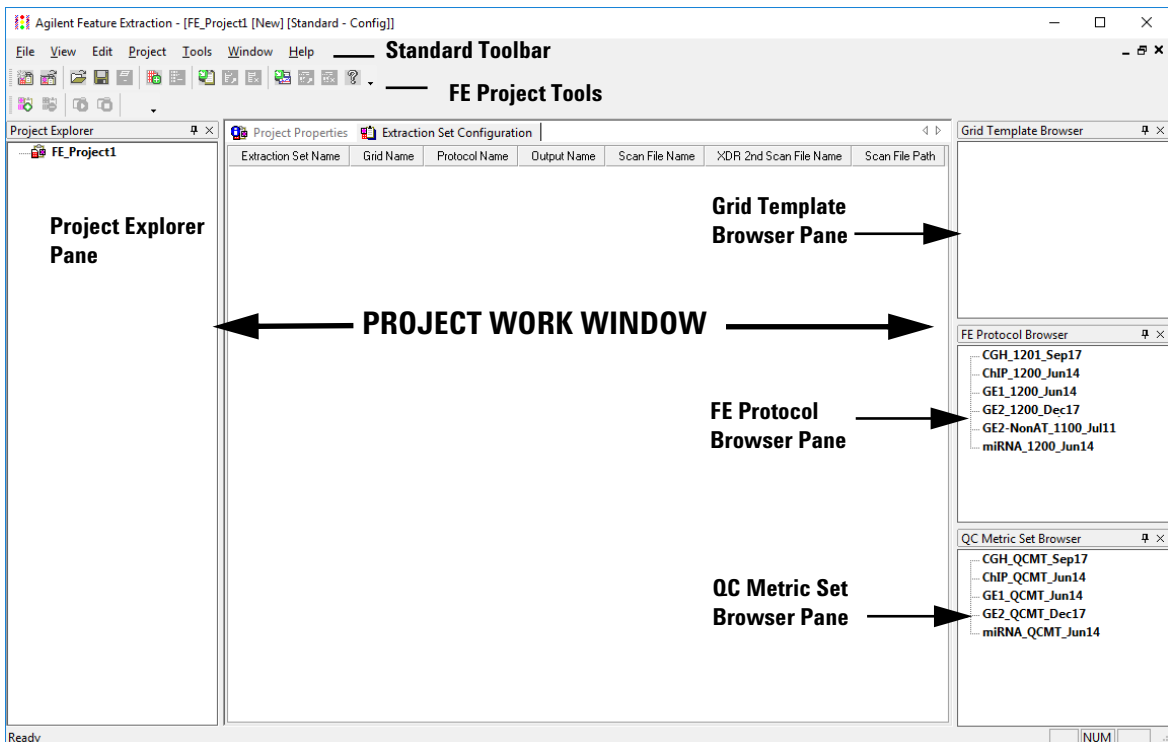


Figure 5 Feature Extraction main window

You can change where and how the project work window and the browser panes dock when you start the program. To learn more about working with this interface, see the *Feature Extraction 12.1 User Guide*.

Step 2. Enter the project properties

- 1 Click the **Project Properties** tab to view the default project properties.
- 2 To change a default setting, select a property and click the down arrow that appears on the right column. Choose from the available options.

| Project Properties Extraction Set Configuration | |
|---|-----------------------|
| General | |
| Operator | Unknown |
| Input | |
| Number of Extraction Sets Included | 0 |
| Output and Data Transfer | |
| Outputs | |
| MAGE | None |
| JPEG | None |
| TEXT | Local file only |
| Output Package | Compact |
| Zip Text File | False |
| Visual Results | Local file only |
| Grid | None |
| QC Report | Local PDF file only |
| FTP Send Tiff File | False |
| Crop multipack image to individual arrays | False |
| Local File Folder | |
| Same As Image | True |
| Results Folder | |
| FTP Setting | |
| Post Processing Plug Ins | |
| Automatic Protocol Assignment | |
| Highest Priority Default Protocol | Grid Template Default |
| Project Default Protocol | |
| Automatic Grid Template Assignment | |
| Use Grid file if available | False |
| External DyeNorm List File | |
| Overwrite Previous Results | False |

Figure 6 Default project properties for a standard project

You can run Feature Extraction for one or more Agilent images generated by the Agilent scanner with these default project properties. You can also set up and run multiple extractions with a combination of Agilent and non-Agilent images.

Step 3. Add image files (extraction sets) to the project

- 1 In the Project Explorer, right-click **FE_Project1**, and click **Add Extraction**.
- 2 Select one or more images, and click **Open**.
 - To select multiple images at a time, hold down the **Ctrl** key and select the images.
 - You can also add one or more image files by dragging and dropping them from the folder to the open project in the Feature Extraction window.

The selected images open in Feature Extraction. Note that for NimbleGen, GenePix, Innopsys, and Tecan images, the program first converts the images and then the converted images open in Feature Extraction.

Any extraction set that is missing the required components, such as grid template or protocol, shows a lightning bolt in Project Explorer and a “?” in the icon of the missing component. (Provided eArray is enabled and the image is an Agilent image.) In versions prior to 10.5, if any of the required components are not attached to the TIFF image, the extraction set is not extracted. This changed beginning with version 10.5.

You do not need to assign a grid template/grid file and a protocol to an image file to run the extraction. Extraction sets without a grid template and/or a protocol attached to the project can be extracted, by setting the software to automatically determine the correct template and protocol to use. For this functionality to work, verify:

- Before running the extraction, you set up to use the eArray server during extraction, as discussed in the section [“To set up eArray login”](#) on page 8.

OR

- Before running the extraction, the required grid templates and protocols exist in the database and are shown in the Grid Template Browser and FE Protocol Browser.

For custom grid templates and protocols that cannot be found on the eArray server, add them manually to the database before you run the extraction. See the *Feature Extraction 12.1 User Guide*.

If grid templates are not loaded automatically, or you want to use a different grid template or protocol, you can assign them manually. See “Step 4. Assign grid template/grid file to the extraction set (depending on type of images)” on page 19 and “Step 5. Assign a protocol to the extraction set (optional)” on page 21.

Step 4. Assign grid template/grid file to the extraction set (depending on type of images)

Agilent images By default, if a required grid template is in the database, Feature Extraction automatically associates the appropriate grid template to the extraction sets when you add Agilent TIFF images to the project. If the grid template is not in the database, but you selected to use the eArray server during extraction, the Feature Extraction software tries to locate the correct grid template in the eArray server and use it for the extraction.

You can also assign a grid template or grid file to the Agilent image.

To assign a grid template for Agilent images:

- 1 Expand the extraction set.
- 2 Select a grid template from the Grid Template Browser, hold down the mouse button and drag it to the second position of the extraction set in Project Explorer.
- 3 Let go of the mouse button to drop it at this position.

To assign a grid file for Agilent images:

- 1 Right-click the second position of the expanded extraction set and click **Select Grid File**.
- 2 Select the grid file, and click **Open**.

The grid file name appears in the extraction set, along with the grid template on which it is based.

Non-Agilent images Assign a grid file to non-Agilent images in the project. The extraction automation feature is not supported for non-Agilent images. Feature Extraction does not extract non-Agilent images that are missing grid files or protocols.

To assign a grid file for non-Agilent images:

- 1 Right-click the second position of the expanded extraction set and click **Select Grid File**.
- 2 Select the grid file, and click **Open**.

AMADID is the Agilent MicroArray Design Identifier.

Agilent microarray images scanned with an Agilent scanner For Agilent microarray images with barcode information included in the image, the software selects a grid template from the database using the AMADID portion of the barcode associated with the image file. If there are grid templates for that AMADID that come from multiple design files, the software selects the grid template from the most recent Agilent design file. To add a barcode if the image has none, see the *Feature Extraction 12.1 User Guide*.

For this automated assignment to work, make sure that the grid template is in the database. If it is not, you can let the Feature Extraction try to download the required grid template automatically from the eArray server. Or, you can interactively associate a grid template or grid file with the extraction set. See [page 19](#) for details on how to assign a grid template or grid file.

Agilent uses barcode information for many workflow automation and data tracking steps. Inclusion of the Agilent barcode information in the TIFF file helps ensure that the data is quickly, easily and accurately processed and that informatics programs know how to analyze the results.

Agilent microarray images scanned with a non-Agilent scanner For Agilent microarray images generated on Roche NimbleGen MS 200 scanners, Molecular Devices GenePix scanners, select Innopsys InnoScan scanners, or select Tecan scanners, the program selects a grid template using the same method described above for Agilent microarray images scanned with an Agilent scanner.

Non-Agilent images scanned with an Agilent scanner Non-Agilent image files from an Agilent scanner do not point to grid information that the Agilent Feature Extraction software can read. Therefore, when you load the non-Agilent image file, add a grid file that you have already created.

See Chapter 3 in the *Feature Extraction 12.1 User Guide* to learn how to create grid files.

Step 5. Assign a protocol to the extraction set (optional)

Automatically assigned protocols come from two sources: a default protocol associated with the grid template, or a project level default protocol. You select which of these options has the higher priority. (See Chapter 2 of the *Feature Extraction 12.1 User Guide* to learn how to associate a protocol with a grid template and where to enter the project level default protocol.) You can also add a protocol to the extraction set manually.

To add a protocol manually:

- 1 From the Protocol Browser select a protocol, hold down the mouse button and drag it to the third position of the extraction set.
- 2 Release the mouse button to drop the protocol onto the third position of the set.

Feature Extraction can run analyses on Agilent 1-color gene expression (GE1), 2-color gene expression (GE2), CGH, CGH+SNP, ChIP, miRNA, and non-Agilent 2-color GE (GE2-nonAT) microarray images scanned on the Agilent scanner. Agilent includes Feature Extraction protocols for extracting each of these image types.

CAUTION

These Feature Extraction Protocols were optimized using data from Agilent catalog arrays, which have many replicated probes and validated Negative Control probes. If you use custom arrays without enough replicated probes, or arrays with custom probes designated as Negative Control probes, the default Feature Extraction Protocols may not be optimal. The Feature Extraction Protocol optimization also uses the Agilent default lab protocols for label, hybridization, wash, and scanner procedures.

Step 6. Add or change grid templates from design files (optional)

For the Agilent images you intend to extract, you add grid templates based on the images' design files to the Grid Template Browser.

- 1 Right-click the Grid Template Browser pane, and click **Add**.
- 2 Select a design file or files, and click **Open**.

Every extraction needs an image file, assigned grid template/grid file, and protocol. Grid templates and protocols for Agilent images are loaded to the extraction set automatically by the software, if the grid template is available in the database. If a grid template is in the database, it is

displayed automatically in the Grid Template Browser. If a grid is not in the database, the software automatically gets the grid template from eArray when the extraction starts. For details on how to update or add grid templates using Agilent eArray, see the *Feature Extraction 12.1 User Guide*.

Step 7. Change QC metric set associated with the protocol to monitor QC metrics

Occasionally, the Feature Extraction software is used in a production environment, where the microarray processing protocols are similar and monitoring run-to-run consistency is an important goal. Feature Extraction can help monitor this consistency with the QC metric sets.

In earlier versions of Feature Extraction, you choose one QC metric set in the Project Properties tab that was used for all extractions in a project.

In version 10.5 and higher, the QC metric sets and protocols are linked. The Feature Extraction protocol defines which metric set is used with it.

To change the QC metric set associated to the Feature Extraction protocol:

- 1 In the FE Protocol Browser, double-click a protocol to open the FE Protocol Editor.
- 2 Select **Protocol Properties** to see the protocol properties.
- 3 Under General, click the cell next to **Metricset**.
- 4 Click the down arrow, and select the QC metric set appropriate for your microarray application.

If a metric set you want to use is not available in the metric set list, import it to the database first.

To import a QC metric set into the database:

- 1 Select **View > QC Metric Set Browser** from the Feature Extraction main window, if it is not already visible.
- 2 The QC Metric Set Browser displays all of the default metric sets and custom metric sets in the database. Custom metric sets are created using the QC Chart Tool software. Right-click in the QC Metric Set Browser and select **Import** to import metric sets that are not in the database.

The default QC metric sets installed with the Feature Extraction software are read-only and cannot be removed from the database. However, you can remove or change a QC metric set associated with the protocol and then save it as a new protocol with a different name.

To remove a QC metric set from the protocol:

- Select **<Set empty>** from the metric set list in the Protocol Properties.

5 Click **Save As** to save the new protocol.

QC metric sets Metric sets are loaded into the database when you install the Feature Extraction software. If you set up the eArray login as discussed in the section “[To set up eArray login](#)” on page 8, then Feature Extraction automatically downloads and installs the latest QC metric sets from the eArray server.

If you remove a QC metric set, updates of QC metric sets are also available at www.agilent.com/chem/feqcmetrics, if you want to download and install them manually in Feature Extraction.

CAUTION

Agilent-supplied QC metric sets are intended to assist users in monitoring microarray processing issues. They were not developed to detect microarray manufacturing issues.

The metrics and thresholds were developed with data generated from Agilent arrays and using Agilent web-lab protocols, scanners, and default Feature Extraction protocols. Any deviation from this workflow may produce data that cannot be accurately quality controlled by the Agilent QC metrics and thresholds.

When you create a QC metric set using the Agilent QC Chart Tool software, you can associate it to a protocol in Feature Extraction. When a project with that protocol is run, the Feature Extraction software summarizes the metric statistics on the QC report and shows how the results compare to the thresholds (if any) defined in the metric set. It also reports this information in the output files in the statistics table. For more information on using the QC Chart Tool software, see the *Agilent QC Tools User Guide*.

Step 8. Save the project


1 Select **File > Save As**.

By default, your projects are saved in the folder
C:\ProgramData\Agilent\FeatureExtractionStandalone\FEProjects

General instructions

- 2 To save in a different location, go to or create the folder for your projects.
- 3 Type a project name, and click **Save**.

Step 9. Run Feature Extraction

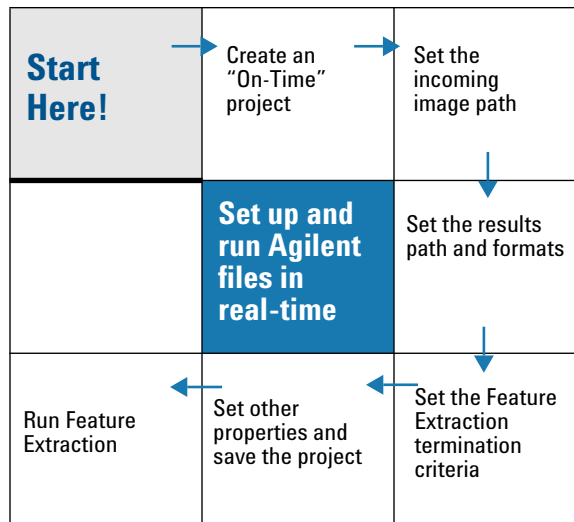
- 1 Click the **Project Run mode On/Off** button on the Feature Extraction Project toolbar,  or select **Project > Start Extracting**.

Setting up an On-Time Project to Extract Agilent Image Files in Real Time

Instructional overview

An On-Time project lets you set up the Feature Extraction software to extract Agilent microarray image files automatically as they are transferred from the Agilent scanner to a designated folder.

Follow the workflow here and the instructions on the next pages to get started.



NOTE

On-Time projects work only with Agilent microarrays scanned on the Agilent scanner.

General Instructions

These instructions help you set up the software to run a batch of Agilent microarray images in real time as they arrive from the Agilent scanner to a folder of your choosing. These instructions do not include running Feature Extraction.

Step 1. Create an on-time project

- Select **File > New > On-Time Project**.

Note that you do not add extraction sets to on-time projects.

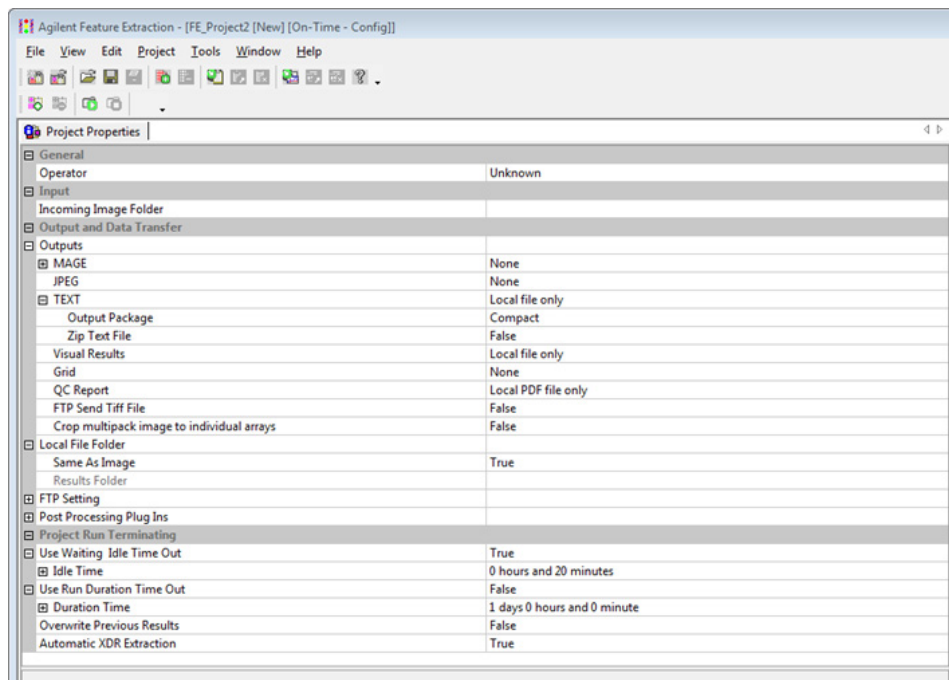


Figure 7 On-Time Project Properties window

Step 2. Enter the incoming image path

- 1 Click the cell next to Incoming Image Folder, and select the path for your scanned images.
- 2 Click **OK**.

The software assigns the appropriate grid template to each of the Agilent microarrays and the appropriate protocol included in the Grid Template Properties sheet.

If you want the On-Time project to process microarrays whose grid templates are missing from the database, set up the software to use the eArray server during extraction. The required grid templates, protocols, and QC metric sets are automatically downloaded and installed in the database. See “To set up eArray login” on page 8 for more details.

Step 3. Enter termination criteria

- 1 Click the cell next to Use Run Duration Time Out, and select **True**.
- 2 If not expanded, expand the Duration Time folder.
- 3 Use the sliders to enter 0 for **Days**, 2 for **Hours** and 30 for **Minutes**.

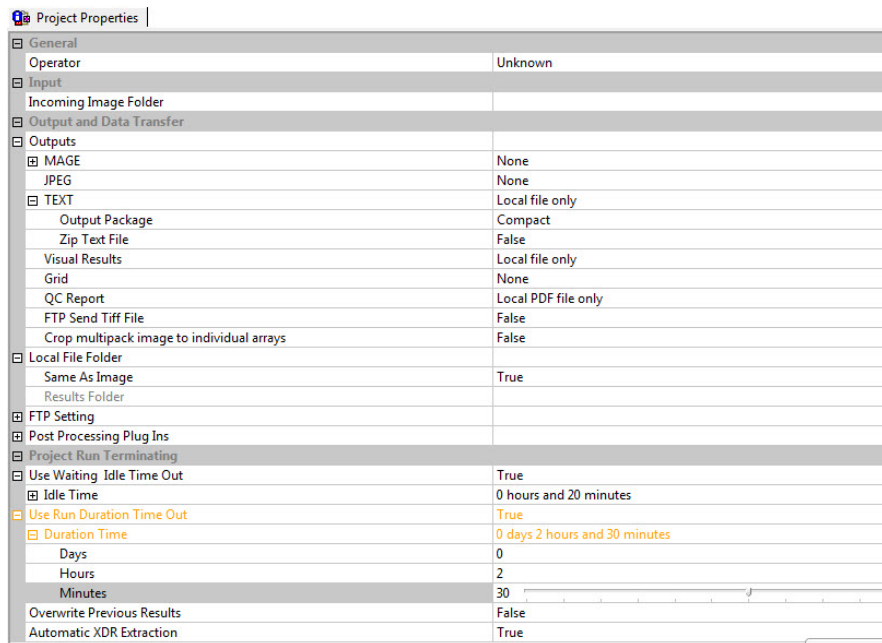


Figure 8 On-Time Project run duration

Step 4. Change QC metric set associated with a protocol to monitor QC metrics

To change the QC metric set associated to the Feature Extraction protocol:

- 1 In the FE Protocol Browser, double-click a protocol to open the FE Protocol Editor.
- 2 Select the **Protocol Properties** tab to see the protocol properties.
- 3 Under General, click the cell next to **Metricset**.
- 4 Click the down arrow, and select the QC metric set appropriate for your microarray application.

If a metric set you want to use is not available in the metric set list, first import it to the database.

To import a QC metric set into the database:

- 1 Select **View > QC Metric Set Browser** from Feature Extraction main window, if it is not already visible.
- 2 Right-click in the QC Metric Set Browser and select **Import** to import either Agilent metric sets or metric sets created with the QC Chart Tool.

The default QC metric sets installed with the Feature Extraction software are read-only and can not be removed from the database. But you can remove a QC metric set from the protocol.

To remove a QC metric set associated with the protocol:

- 1 Select **<Set empty>** from the metric set list in the Protocol Properties.
- 5 Click **Save As** to save the new protocol.

Step 5. Save the project

- 1 Select **File > Save As**.

By default, your projects are saved in

C:\ProgramData\Agilent\FeatreExtractionStandalone\FEProjects.

- 2 To save in a different location, go to or create the folder for your projects.
- 3 Type a project name, and click **Save**.

Step 6. Run Feature Extraction

- 1 Make sure that the scanner is ready.
- 2 Click the **Project Run mode On/Off** icon in the Feature Extraction Project Tools, or select **Project > Start Extracting**.

The image files are saved to the Incoming Image Folder as they complete scanning and are then extracted automatically.

You can display the progress of the extractions, the Summary Report, and the QC Report as you did for the Standard Project extractions.

The Summary Report notes how many metrics are within range for each extraction. The QC report for each image contains the values for the metrics and an evaluation of whether they were within or exceeded the threshold limits.

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In this book

This book contains brief instructions to help you get started with your Agilent Feature Extraction 12.1 software. This book shows you:

- What is new for version 12.1
- How to set up and run batch extractions of existing Agilent and non-Agilent image files
- How to set up and run batch extractions of Agilent image files in real time

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