

Quick Reference Card

AGCC 3.0 for Cartridge Arrays



Introduction

The Affymetrix® GeneChip® Command Console® software provides tools that enable you to:

- Process cartridge arrays or array plates.
- Extract the intensity data for use by the probe level analysis software.
- Organize the resulting sets of data files.

To fully use the capabilities of AGCC, you need to understand:

- The AGCC Array Processing Workflow and Components
- The types of files that AGCC produces and uses
- The structures and tools that AGCC uses to organize the resulting data

The *AGCC 3.0 for Cartridge Arrays Quick Reference Card* introduces these concepts and describes the workflow for registering and processing cartridge arrays.

See the *AGCC 3.0 for GeneTitan™ And GeneTitan MC Instrument QRC* for information on array plates.

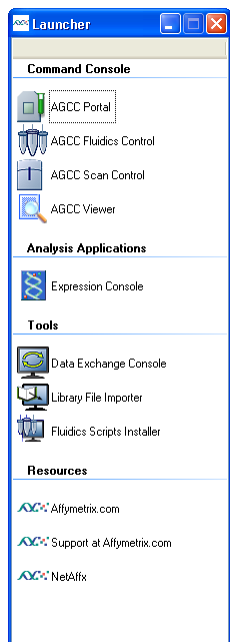
Launching AGCC Components

The Command Console Launcher provides a convenient way to open the AGCC software applications.

To start the Command Console Launcher:

- Click the Microsoft® Windows® Start button and select **Programs → Affymetrix → Command Console Launcher**; or Double-click the Launcher shortcut on the desktop.

The Command Console Launcher opens.



Command Console components for performing Array Processing Workflow

Affymetrix Analysis Applications for analyzing cell intensity data

Affymetrix Tools for migrating data and installing necessary support files

Web resources to learn more about Command Console and other Affymetrix products

Click on the icon for the software tool or resource to open it. The Command Console components for cartridge arrays are introduced in *Cartridge Array Processing Workflow* on the next page.

Learning More About AGCC

AGCC is described in more detail in the following resources:

- Context-sensitive AGCC Online Help
- Manuals in Adobe PDF format, available in the AGCC Download package:
 - AGCC User Manual
 - AGCC Installation Instructions
 - AGCC Workgroup Addendum
- Affymetrix Learning Center at Affymetrix.com

The use of the GeneTitan System with the AGCC software is described in the *AGCC 3.0 for GeneTitan and GeneTitan MC Instrument QRC*.

Other Tools and Resources in the Launcher

Analysis Applications

These applications are used to analyze the cell intensity data produced by the Array processing workflow in AGCC.

They include third-party software and Affymetrix software such as:

- Affymetrix Expression Console™ Software
- Affymetrix Genotyping Console Software
- Affymetrix GeneChip® Sequence Analysis Software (GSEQ)
- Affymetrix GeneChip® Targeted Genotyping Analysis Software (GTGS)
- Affymetrix® Tiling Analysis Software (TAS)

Affymetrix Tools

These tools are used to install the necessary support files for AGCC:

- Affymetrix Data Exchange Console: enables the migration of data from various versions of GeneChip® Operating Software (GCOS) software into Affymetrix® GeneChip® Command Console™ (AGCC) software and back.
- AGCC Library File Importer: imports GCOS library files into AGCC.
- AGCC Fluidics Scripts Installer: installs fluidics scripts for the AGCC Fluidics Control Software.
- GeneTitan Library File Installer: installs library files for GeneTitan array plates.

Web Resources

These resources help you learn more about AGCC and other Affymetrix products:

- Affymetrix.com: links to the Affymetrix home page.
- Support at Affymetrix.com: links to the Command Console software support page.
- NetAffx: links to the NetAffx Analysis center, which provides information on the array design and annotation to help you use your results.

Cartridge Array Processing Workflow

Workflow Steps

Register Sample(s) and Assign Arrays in Sample (ARR) files



Process Probe Array in Fluidics Station



Scan Probe Array and Save Image Data in DAT files



Review grid alignment and perform manual gridding if necessary



Analyze Cell Intensity Data and Generate Probe Analysis Data in CHP files

AGCC Components

AGCC Portal

AGCC Portal provides multiple ways to create Sample files. To select the appropriate method for your operation, evaluate:

- The number of arrays you are going to be processing
- Whether you will want to enter sample attributes during registration
- Whether you will want to enter attributes at a later time
- Whether you are creating samples for a plate

The Sample registration options are described in *Creating and Editing Sample (.ARR) Files* of the *AGCC User Manual* and Online Help.

AGCC Portal also provides tools for finding and organizing data in AGCC.

AGCC Fluidics Control

The AGCC Fluidics Control software is used to control the FS450 Fluidics Station. A workstation with AGCC Fluidics Control software and a Sealevel card installed can control up to eight different fluidics stations.

The AGCC Fluidics Control software is described in *Controlling the Fluidics Station* in the *AGCC User Manual* and Online Help.

AGCC Scan Control

The AGCC Scan Control software is used to control:

- GeneChip® Scanner 3000 (GCS3000)
- GCS3000 With Autoloader

The AGCC Scan Control software is described in *Scanning Arrays* in the *AGCC User Manual* and Online Help.

AGCC Viewer

After the array has been scanned, AGCC:

- Aligns a grid on the Image (DAT) file to identify the probe cells
- Computes the probe cell intensity data for the array and creates a CEL file

The AGCC Viewer enables you to track the progress of this step in the workflow, review gridding results, and manually correct gridding problems, if necessary. The Viewer and its use are described in *Using the AGCC Viewer* in the *AGCC User Manual* and Online Help.

Affymetrix and Third Party Probe Analysis Software

Software for doing higher-level analysis on Cell Intensity Data.

Includes Affymetrix software such as:

- Affymetrix Expression Console™ Software
- Affymetrix Genotyping Console Software
- Affymetrix GeneChip® Sequence Analysis Software (GSEQ)
- Affymetrix GeneChip® Targeted Genotyping Analysis Software (GTGS)
- Affymetrix Tiling Analysis Software (TAS)

See the *AGCC 3.0 for GeneTitan and GeneTitan MC Instrument QRC* for more information about using the AGCC GeneTitan Control Software and the GeneTitan Instrument.

File Types in AGCC

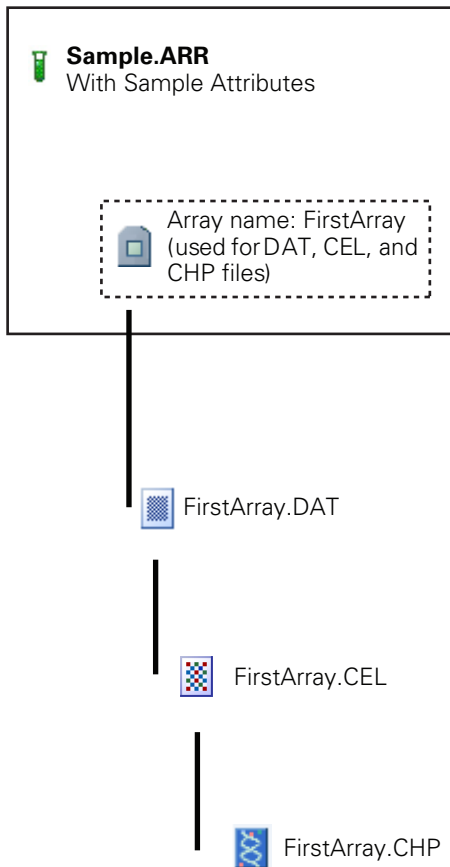
Sample Files

In AGCC, the sample is the beginning of the data chain for a given experiment. The sample information is stored in a Sample file with an ARR extension.

The Sample file collects two types of information:

Sample Attributes: information that you can use to interpret the experimental data. It can include information about the sample itself, the experimental conditions, or other information you may find useful. You can use the attributes to search for particular files; some attributes can be used by the probe level analysis software during analysis.

Array Information: Information about the array(s) used with the sample, including an array name that is used to name the DAT, CEL and CHP files. More than one array can be associated with the sample. This is useful for tracking replicates; in addition, it can be used to simplify tracking data for multi-chip arrays, such as 500K arrays.



Data Files

A set of data files is produced for each array in the Sample file during the array workflow.

Image (DAT) file

The DAT file contains pixel intensity values collected from an Affymetrix scanner, along with the gridding information used during feature extraction.

Intensity (CEL) Data Files

The CEL file stores the results of the intensity calculations on the pixel values of the DAT file.

Probe Analysis (CHP) Files

The CHP files contain the probe set summarization data for the array. They are produced by the analysis application and contain the actual data of interest (SNP calls, expression data, etc., depending upon the array type).

Other File Types

Audit Files

One Audit file is produced for each physical array. The Audit file tracks all the processing steps that were performed on the array, including multiple scans and regridding.

Log Files

Log files are produced by different AGCC components; they provide a record of the tasks performed by different instruments as arrays are processed.

Tracking File Lineages









The parent/child relationships of a Sample file and its associated data files are not tracked by file name in AGCC. A GUID, or Globally Unique Identifier, is assigned to each file for tracking.

The GUIDs enable you to trace the lineage of any data file independent of the file name.

Data Organization in AGCC

Command Console uses a hierarchy of folders to organize the AGCC Sample and data files. In addition, you can assign a Project label to a folder and to the Sample and data files in that folder.

Data Roots and Subfolders

-  **Windows File folder** (not associated with AGCC)
-  **C:\Command Console\Data Root 1** (on user's computer)
 -  **Subfolder 1 [Project A]**
 -  **SubFolder 2** (not associated with project)
-  **C:\Command Console\Data Root 2** (on user's computer)
 -  **Subfolder 1 [Project C]**
-  **\\sharename\shareNetwork Data Root** (on network storage)
 -  **Subfolder 1 [Project D]**

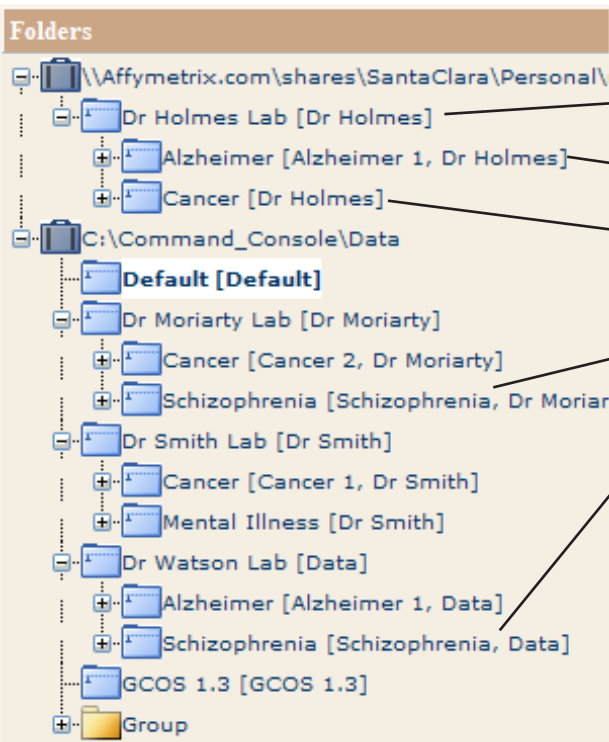
There are two types of folders on your computer:

- Windows File folders: Not assigned to an AGCC Data Root.
- Data Roots and Subfolders: Assigned to AGCC as a folder for Command Console data.

Only data roots and their contents, including Subfolders, are searchable and displayed in AGCC Portal.

Using Projects to Organize Data

A project is a label assigned to a Data Root or Subfolder that can be used to organize Sample and data files. If you assign a project name to a Data Root or Subfolder, all the Sample and data files in that folder will be assigned that project name. Also, any child subfolders of that project folder will be assigned the project name.



- Projects have the following characteristics:
- Any Data Root or Subfolder can be a project.
 - The project folders use the naming convention: Windows folder name [project name]
 - One folder can be a member of more than one project.
 - All subfolders in a project folder are automatically a part of that project.
 - Folders in different locations can be in the same project.
- After assigning a project name to a data root or subfolder, any Sample file placed in that data root or subfolder is assigned to the project. You can then use the project label to:
- Display file lists grouped by project
 - Search on data limited to a project
 - Create a spreadsheet listing the Sample (.ARR) files assigned to the project with their attributes
- For more information about data roots and projects, see the *AGCC User Manual* and Online Help:
- *Getting Started with AGCC*
 - *AGCC Portal and Data Organization*

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