



Studio Software Update 8.0 – Release Notes

Previous Studio Release: 7.7

Supported Equipment PC: Z97

Offline Studio Operating System: Windows XP (Service Pack 3) or higher; extensive testing specifically performed on Win 7 32/64 bit and Win 10 64 bit

Summary:

All included Studio applications have been validated for compatibility with previously created Akrometrix Studio file formats. However, note that phase image files created with Studio 8.0 cannot be opened with older versions of Surface Analysis due to the new 12 bit data acquisitions. A stand alone tool to migrate 12 bit to 8 bit is in development and will be release as a standalone download in the coming weeks. Important bug fixes and added features are listed below. This list does not include all resolved bugs and added features. Additionally, some known open issues are listed, with work-arounds where applicable.

Update Procedure:

32-bit 3GB Switch:

In order to increase the usable memory for a single program in running 32-bit Windows 7, Akrometrix recommends taking the following steps. This includes all currently installed equipment PCs. Offline PCs running 64-bit Surface Analysis should not perform these steps.

- 1) In 32-bit Windows 7 click Start at the bottom left of the screen
- 2) In the Start Search box type in cmd and press CTRL+SHIFT+ENTER
- 3) A User Account Control window may appear. Click Yes to proceed.
- 4) In the command prompt Type: "bcdedit /set IncreaseUserVa 3072" and hit ENTER
- 5) Restart the computer
- 6) Repeat steps 1-3
- 7) In the command prompt Type: "bcdedit" and hit ENTER. Confirm that the "increaseuserva" field at the end of the shown list shows "3072".
- 8) Close the window

Install Studio 8.0

Install all applications for Studio 8.0 by launching the provided file "Akrometrix Studio 8.0 Installer x86[or x64].exe". Uninstalling older Studio applications is not required prior to launching this file, as this will be done automatically. A computer restart should be performed after the install. Take note to only install the x86 version for 32 bit systems and x64 for 64 bit systems. Note that all current equipment PCs in the field are 32 bit.

Additionally a new version of Interface Analysis is available for download with this launch. This new feature will follow the same licensing requirements as the previous build and has no functional changes with the exception of being able to open the 12 bit displacement files created by Studio 8.0.

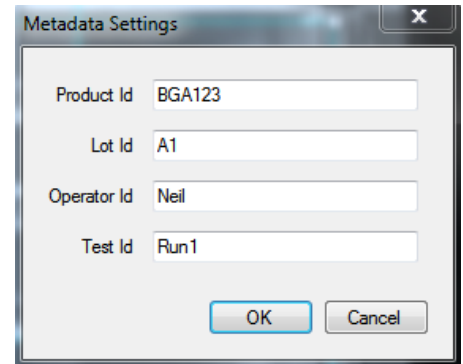
Key Feature Changes or Additions:

Automated Report Generator

An entirely new software solution for communicating Akrometrix results is included with the Studio 8.0 release. To help users understand this extensive feature a separate [instructional video](#) (YouTube link here) is provided along with these release notes. The Automated Report Generator exists within Surface Analysis and uses file Metadata to automatically create a warpage report including gauge plots and tables, along with graphical warpage outputs. New Metadata has been added to further support reporting.

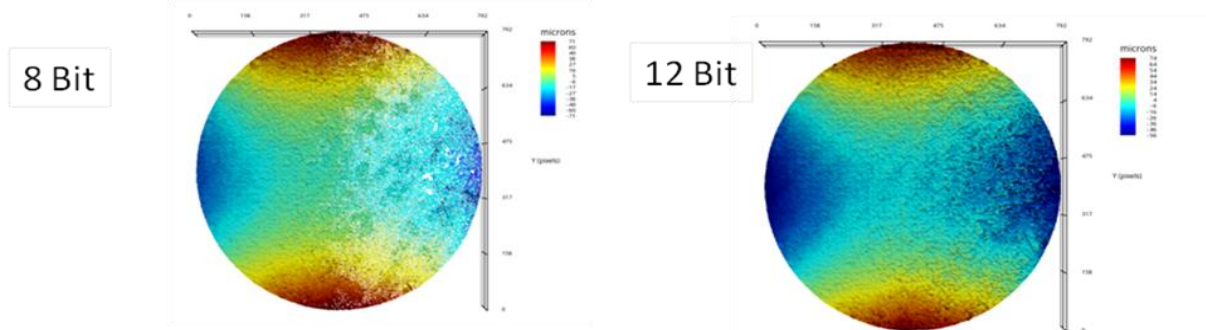
Metadata Settings

Various new Metadata Settings have been added to Surface Measurement and Thermal Profiler to further identify the data capture during a given profile or measurement. Specifically: Product ID, Lot ID, Operator ID, and Test ID.



Enable Unpainted Sample Measurement via 12 bit Data Acquisitions

Studio 8.0 enables 12-bit shadow moiré for users with Gig-E cameras. 12-bit measurements utilize a greater bit depth for shadow moiré images, grayscale changing from 0-255 to 0-4095, allowing for unpainted samples and wider lighting ranges to be measured at improved resolution. An example of an unpainted wafer is shown below.

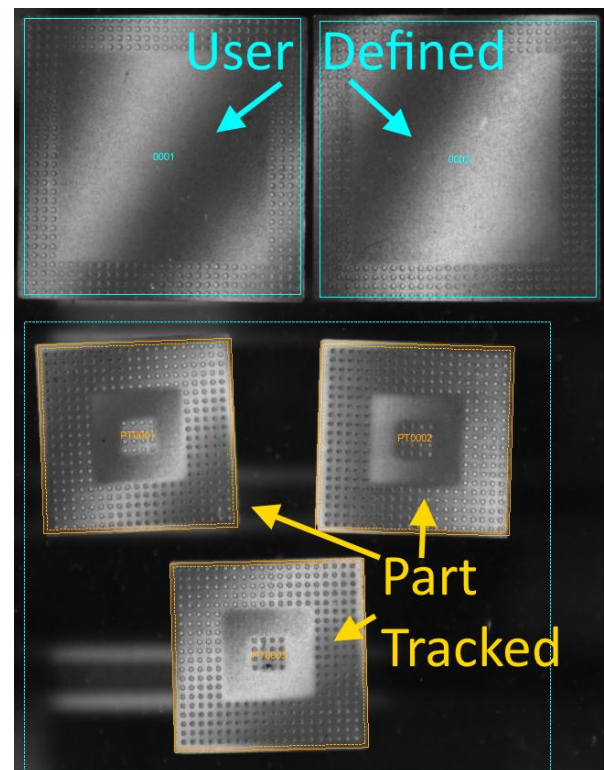


Recipe Based Software

Studio 8.0 shifts to a recipe based approach for workflow in Surface Measurement. The recipe approach allows users to capture test and analysis settings in a single file type to be reused or shared amongst different users or different systems. In Surface Measurement input temperature profiles, ROI and Part Tracking setup, along with various measurement settings are now saved within a recipe file.

Multi-ROI and Part Tracking Integration

Numerous Akrometrix software features within Surface Measurement have now been integrated together. Multi-ROI capabilities, originally contained only in Real Time Analysis (RTA) are now available to all users. Additionally, user specified regions and Part Tracked regions can be both used within the same measurement. Finally, both Multi-ROI and Part Tracking have been unlocked within DFP/CXP software. See the camera image to the right.

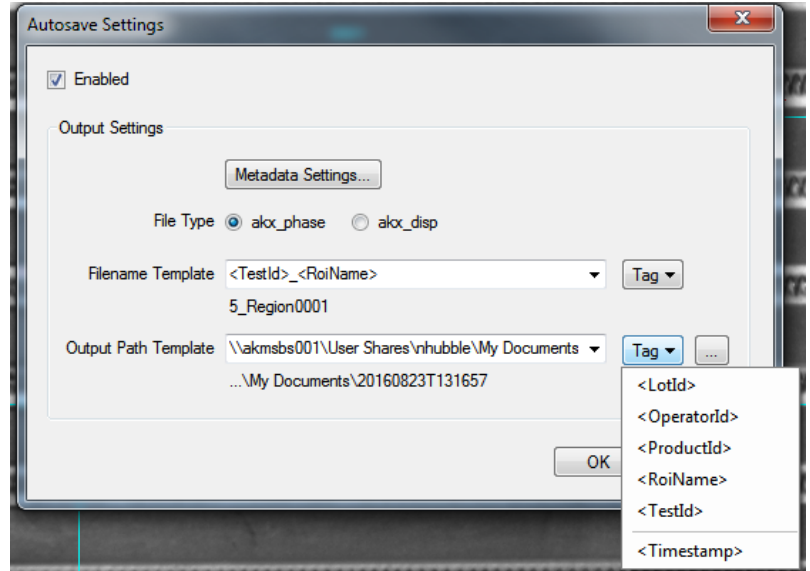


File Tagging

Studio 8.0 provides means to use Metadata variables to populate filenames and different labels. The format for these tags is: “<MetadataName>”. For example, the new Autosave functionality in Surface Measurement (discussed later on), by default, uses the following tags “<TestId>_<RoiName>”. In the below example TestID = 5 and RoiName = Region0001, thus the region 1 file would be named “5_Region0001.akx_phase”.

Increased Memory Limitation via 64-bit Software

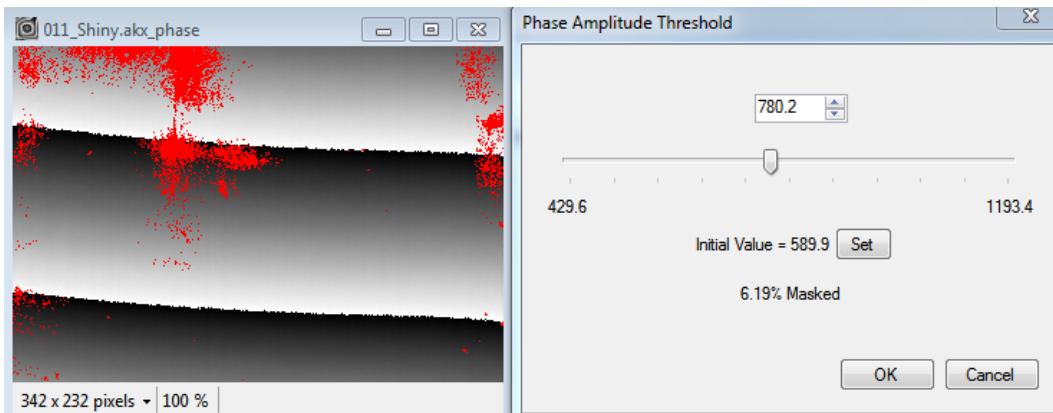
Studio 8.0 is now available in either 32-bit or 64-bit installs. Offline Studio Software has been validated to run in a 64-bit OS. Akrometrix will soon migrate to shipping 64-bit PCs on new equipment.



Noise Filter in Post Processing and Automated Image Quality tracking via Phase Amplitude Threshold in Surface Analysis

Phase Amplitude has been used for noise filtering for many years on shadow moiré data. However, if lighting settings changes or usable data was lost from the original Phase Amplitude setting, nothing could be done. To improve this feature Phase Amplitude Threshold can now also be set in Surface Analysis. This function can even decrease the phase amplitude threshold on a file saved from Surface Measurement. This function exists at the 1-off and batch level.

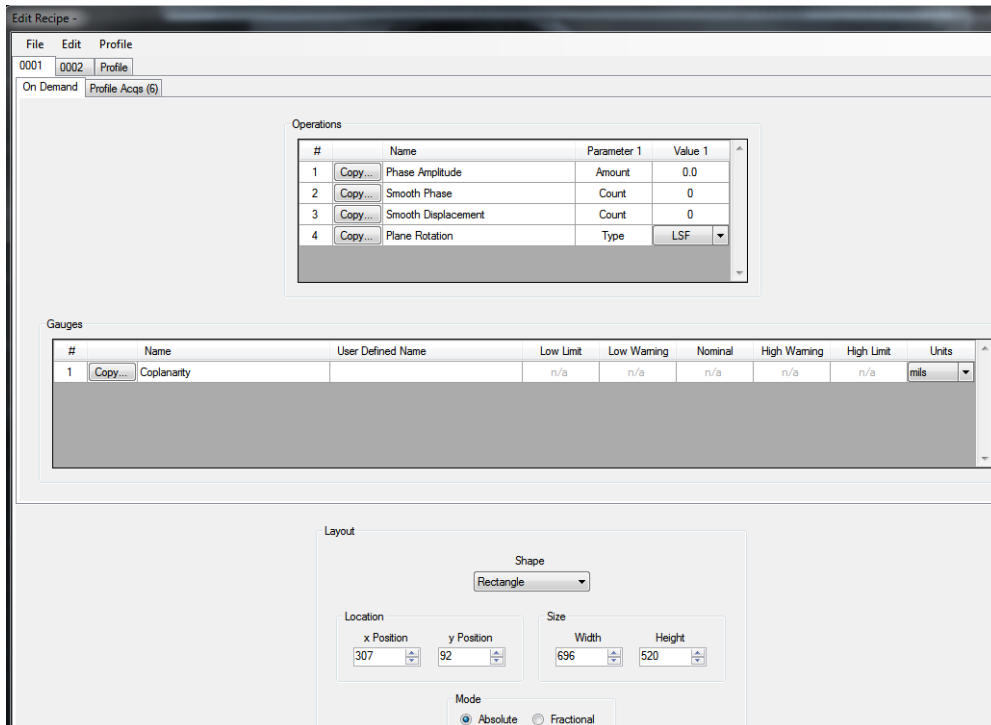
- Surface Analysis tracks max and min Phase Amplitude of a given phase image
- A percentage of points masked by Phase Amplitude Threshold is shown during slider adjustment
- Phase Amplitude range of the image measures image quality



Studio 8.0 Features:

- Surface Measurement: Supported on Z97 PCs

- Phase Amplitude Min and Max are shown for each measurement result ROI, allowing the user to make an immediate assessment of phase image quality.
- New Recipe Interface (Does not require Real Time Analysis 'RTA' license). RTA license is still required to set pass/warning/fail parameters for a gauge.
 - Phase Amplitude, Smoothing, Plane Rotation, Gauges can be unique for each region
 - Input profile loaded at recipe level
 - Settings can be copied between different regions



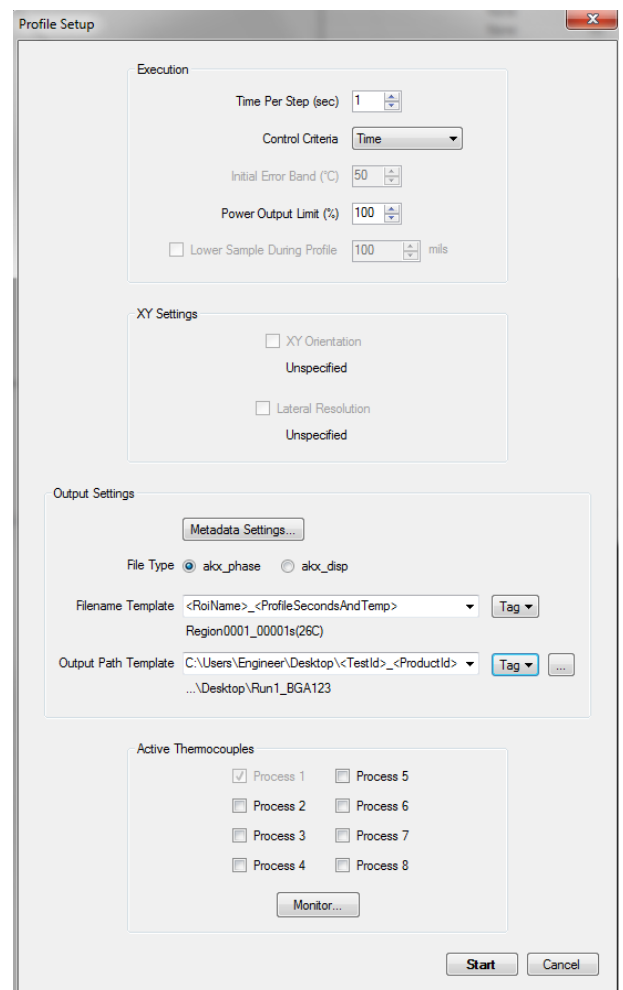
- Default ROI name is now “XXXX” starting with “0001” and increasing in number. ROI names can be changed by the user. ROI name is used commonly as a Metadata tag (<RoiName>). Part Tracking regions are now labeled as “PTXXXX” starting with “PT0001” to distinguish them from user defined regions.
- Phase/Displacement Autosave options are now available within measurements. This increases throughput if within Surface Measurement if taking repeated room temperature measurements. An example can be seen under the File Tagging feature shown previously.
- DIC output files are now compatible with older Vic-3D software versions (2009 and later)
- The Output Window for a manual acquisition in Surface Measurement now defaults to a ‘shrink to fit’ view if displacement/phase/surface images are larger than the window
- DAQ Fringe Height has been updated to a take more iterations over a shorter overall range to improve DAQ Fringe Height calibration accuracy

- **Thermal Profiler:**

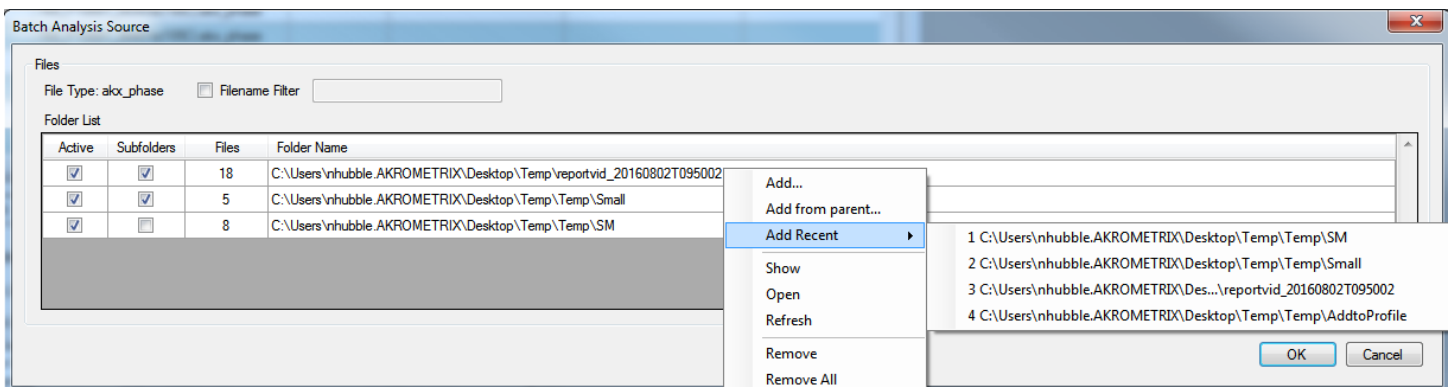
- New Metadata Settings and Tags have also been implemented in Thermal Profiler. “TestID” is essentially replacing “ProfileRunName” for Studio 7.7 and earlier.

- **Surface Analysis**

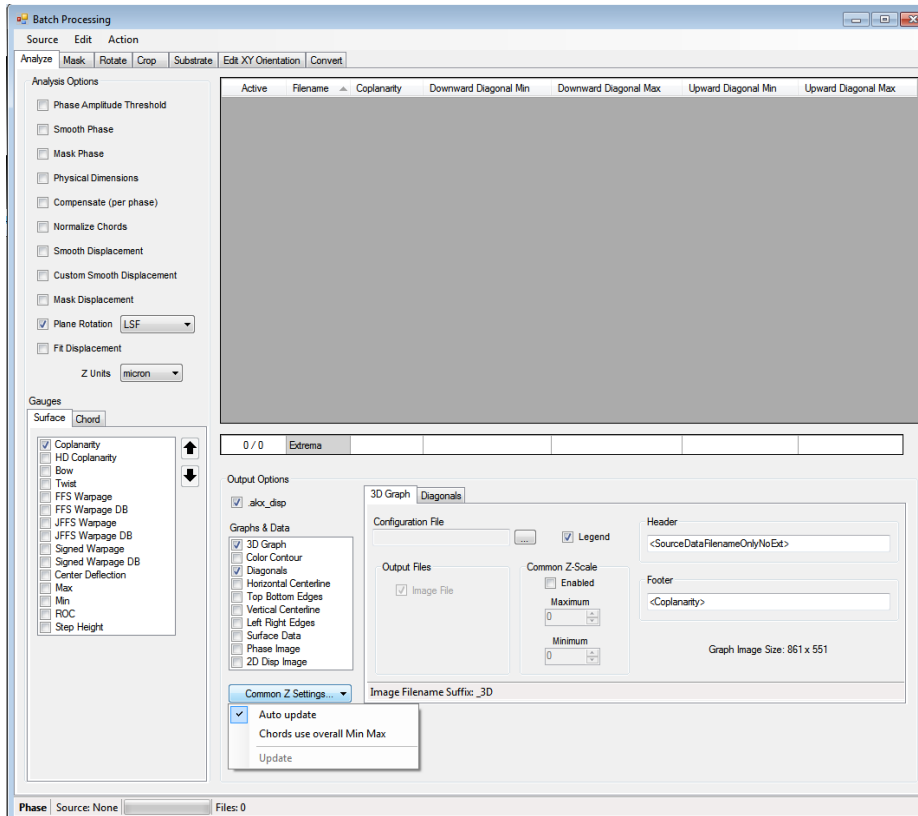
- Phase calculations are now done with floating point numbers increasing precision.
- The “Crop” function has been removed from single phase and displacement files, as it was redundant with the “Partition” function
- Intensity and Surface Image data is now retained after an image rotation in X/Y



- Batch processing is now performed with multi-core CPU processing, increasing processing speed of analyze and generate output.
- In batch processing the new “Convert” tab can be used to convert displacement files to phase image files.
- In batch analyze when displacement files are used to create new displacement files the label “mod” is now added to the file name. This keeps users from over-writing original measurement data.
- In batch analyze files can be selected as active or inactive manually by the user to be excluded from analysis, generate output, or reporting.
- New “Common Z-Settings” have been added to batch to optionally keep preset Z-scale settings from updating as well as allowing Chord graph scales to match the overall data set. These options can be seen in the batch analyze screenshot further below.
- Displacement files can now be created during the Analyze portion of batch processing to compliment skipping the “Generate Output” step when using Automated Report Generator
- Additional context menu interaction in batch analyze allows navigation to a files containing folder in Windows
- BatchResults.txt files are now saved to each active top-level folder when batch analysis is complete
- Multiple source folders can now be loaded in batch analyze. Now called “Source” in the menu batch menu
 - The last 4 loaded folders are recalled and can be added for ease of navigation on all tabs
 - Active and inactive folders, as subfolders can be toggled in this interface
 - Files can be filtered from the active list by a user specified filename



- In batch, all other tabs besides Analyze now share a common and single Source folder for convenience
- Output graph picture file outputs are now labeled with chosen Metadata tags
- Added new DB (dead bug) gauges that show the opposite sign of their counterpart to be used for samples tested in a dead bug configuration. Specifically
 - FFS Warpage DB = FFS Warpage * -1
 - JFFS Warpage DB = JFFS Warpage * -1
 - Signed Warpage DB = Signed Warpage * -1
- Batch analyze defaults can be replaced by a user defined default recipe file
- The new batch analyze tab is shown below



Key Bug Fixes:

Annotations in Studio no longer can be shifted when right or middle clicking, keeping users from unintended shifts in regions, partitions, masks, etc.

- **Surface Analysis:**

- Fixed an unhandled exception when switching tabs while editing a User Defined Plane Rotation
- Column formatting and significant figures now match for all gauges between the BatchResults.txt file and the shown batch analysis results
- Adjusted batch crop to return the correct region when “Layout Behavior” is set to “Preserve Layout”
- Fixed correlation issues between displayed coplanarity on 3D graph, displacement, surface, and gauge tabs when temporary mask files are overlaid on the data
- Physical dimensions were not being correctly placed on 3D and Contour graphs when physical dimension data was provided. The physical dimensions should now be seen in all output graphs when selected.
- Chord graphs now correctly display “Position Along [XXX]” in the footer depending on the appropriate chord type, instead of all saying “Position Along Diagonals”

Known Issues:

- **Surface Measurement**

- After using Part Tracking and then disabling Part Tracking, “Acquire” will appear as grayed out when attempting to acquire manually created regions. A simple workaround is to right-click inside of a created region, where Acquire will be enabled.

- **DFP Surface Measurement**

- Accuracy check mode in DFP Surface Measurement has been removed. In order to verify step height measurements a single phase image of two planes can be taken and analyzed in Surface Analysis using the “Step Height” feature.



Versions (listed for reference):

SurfaceMeasurement	8.0.9999
SurfaceAnalysis	8.0.9999
ProfileGenerator	7.5.9999
FileConverter	7.4.9999
StudioManager	7.5.9999
LicenseUtility	7.5.9999
User Manuals Studio	7.7 (Updated manuals for Studio 8.0 will be released at a later date)