This document describes the modifications and fixes made in CitectFacilities version 7.10 Service Pack 2 as well as providing installation information.

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As per recommended practice, all projects should be backed up prior to commencing the Service Pack installation.

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All projects *must* be upgraded and recompiled after installing this Service Pack. Failure to do so will result in conflicting database size messages. To force an upgrade, edit the Citect.ini file and set [CTEDIT] UPGRADE=1. Ensure that the
[CTEDIT] INCREMENTALCOMPILE=0. Customers should also do an   (in Graphics

This Service Pack contains the known issues described below.

	A change made in v7.10 resulted in locale settings being reflected in CTAPI communications, causing interoperability issues in some locales. This has been fixed by ensuring that CTAPI tag read and writes are "InvariantCulture" format (use decimal points) regardless of local regional settings.
	Customers experiencing this issue should contact Support for a Hotfix.
	After uninstalling service pack 2 (back to the release version) all projects that use the CSV_Include project (including the CSV_Example and Facilities projects) give a compile error indicating "incorrect arguments".
	Customers experiencing this issue should do an (in Graphics Builder Tools Update Pages) on any affected projects.
	On Microsoft Vista, the Web Server Service Pack cannot be uninstalled independently from the base application. Instead the CitectFacilities Web Server must be uninstalled to remove both the base product and Service Pack, and then the base product may be reinstalled. This has been documented in Knowledge Base article Q5450.

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If you already have hot fixes installed on version 7.10, you should review this document carefully to ensure that the hot fixes you have installed are included in this Service Pack. In the event of a discrepancy contact your regional support office for assistance.

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For general information about service packs, see Knowledge Base article Q2181.

This service pack applies to three of the products shipped with CitectFacilities version 7.10:

a) CitectFacilities

b) CitectFacilities Web Server

c) CitectFacilities Internet Display Client

Separate service pack installers have been created for each of these products, allowing you to choose which products you wish to upgrade to Service Pack 2, depending on your requirements.

The procedure for installing Service Pack 2 for CitectFacilities depends on whether you are an existing user of CitectFacilities version 7.10 or a new user.

1. CitectFacilities SCADA 7.10 Service Pack 2

2. Open Citect Explorer, wait until upgrade has completed.

3. For any project using CSV_Include templates:

    a. Select the project in Citect Explorer.

    b. In Citect Graphics Builder, select Tools   Update Pages, then click Yes to continue.

4. Ensure the Incremental Compile   is turned OFF then recompile each project.

5. For any webclient project whose graphics pages were updated in step 3, redeploy:

    a. Run Citect Explorer   Tools   Web Deployment Preparation.

    b. Follow t   Upgrading CitectFacilities 7.10 Web Server to Service Pack 2 re-save the project deployment.

1. Install CitectFacilities 7.10.

2. Open Citect Explorer for the first time and then close.

3.   CitectFacilities SCADA 7.10 Service Pack 2

4. Open Citect Explorer, wait until the upgrade has completed.

5. For any project using CSV_Include templates:

    a. Select the project in Citect Explorer.

    b. In Citect Graphics Builder, select Tools   Update Pages, then click Yes to continue.

6. Ensure the Incremental Compile   is turned OFF then recompile each project.

Installing Service Pack 2 for CitectFacilities Web Server requires that you install Service Pack 2 for CitectFacilities as well otherwise the web client will not work correctly. You should perform this installation as per one of the above two scenarios, then:

1. On your web server(s)   CitectFacilities WebServer 7.10 Service Pack 2   CitectSCADAWebClient_7_10_2_14.cab, which will become available to all your web clients.

2. On all your web client machines, take the following actions:

    a.
        Remove Programs.

    b.   Citect Web Client 7.10
        you should delete the *%windir%\system32\citect\webclient\710* directory. (*NB: %windir% indicates the default windows installation directory.)*

    c. In the CitectFacilities Web Deployment Configuration (in Internet Explorer):

        i.   CitectSCADAWebClient_7_10_2_14   from the *Client Control* drop down menu.

        ii. Save the deployment by selecting the action to save deployment.

Installing Service Pack 2 for CitectFacilities IDC requires that you install Service Pack 2 for CitectFacilities on your servers otherwise the IDC will not work correctly. You should perform installation as per one of the scenarios mentioned earlier (existing CitectFacilities users versus new ones), and then   CitectFacilities IDC 7.10 Service Pack 2   on each of your IDC machines.

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CitectFacilities IDC is not supported on Windows Vista.

The procedure for removing (rolling back) Service Pack 2 depends on which Operating System you are running.

Before following one of the procedures below, backup your citect.ini file to a temporary location. You can use the Computer Setup Editor (via Tools menu) to determine the location of this file. This step is required as the uninstall procedure may revert some settings back to their default. Additionally, unless you are restoring your projects to the backups made prior to Service Pack upgrade, you will also need to backup the citect.frm file from the Bin directory. Restore the citect.ini file (and possibly citect.frm) to their original location upon completion of the uninstall procedure.

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On Microsoft Vista, the Web Server Service Pack cannot be uninstalled independently from the base application. Instead the Citect Web Server must be uninstalled to remove both the base product and Service Pack, and then the base product may be reinstalled. This has been documented in Knowledge Base article Q5450.

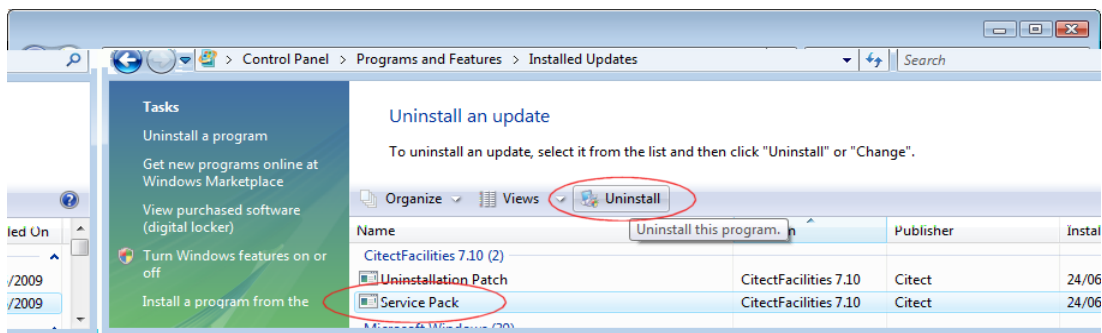Follow these steps to uninstall products other than the Web Server:

1. From the bin directory of your Citect installation, r   CitectFacilities SCADA 7.10 Uninstallation Patch.exe   *(This will ensure that Service Pack 2 and future service packs may be uninstalled).* For further information, see Knowledge Base article Q5444.

2.   selecting it from the list:
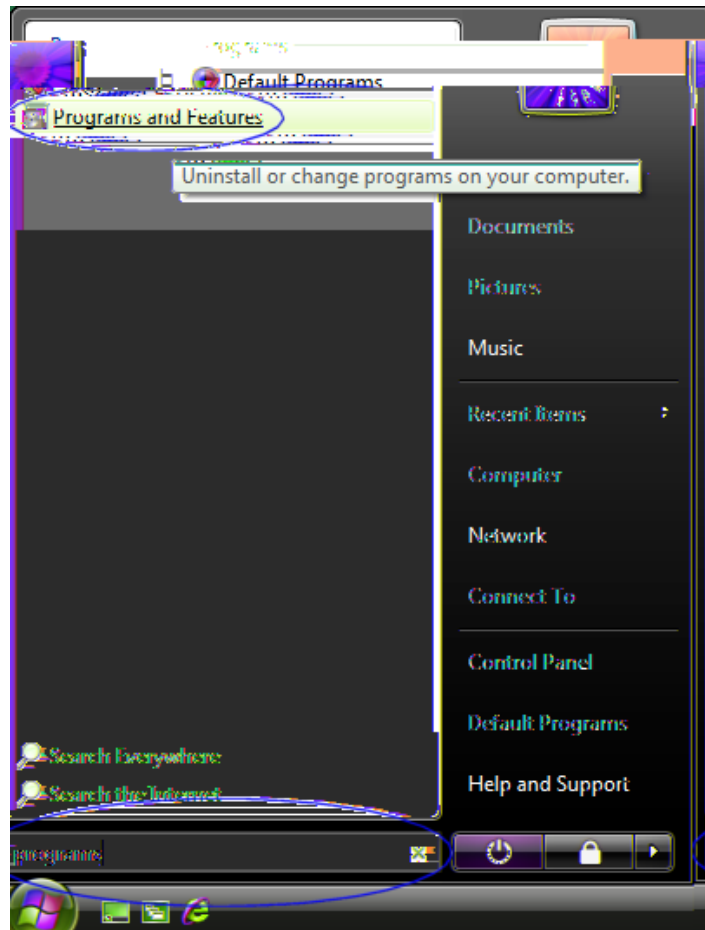
3.   :
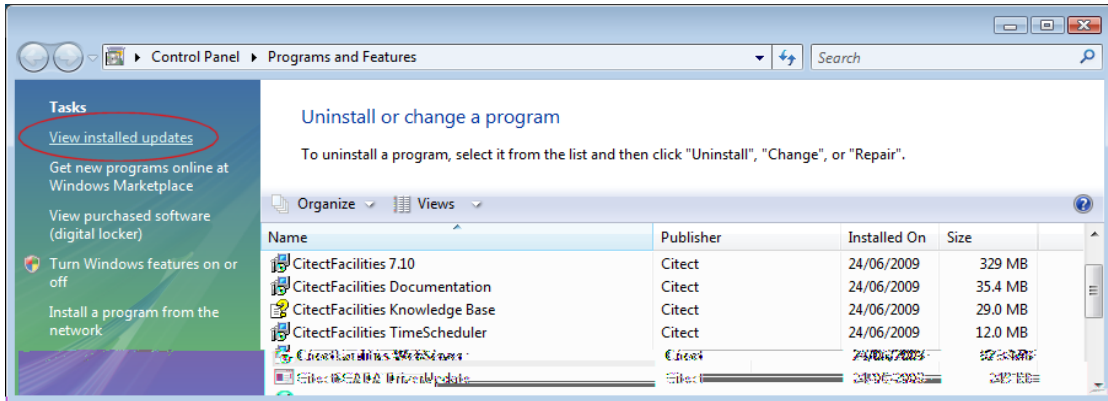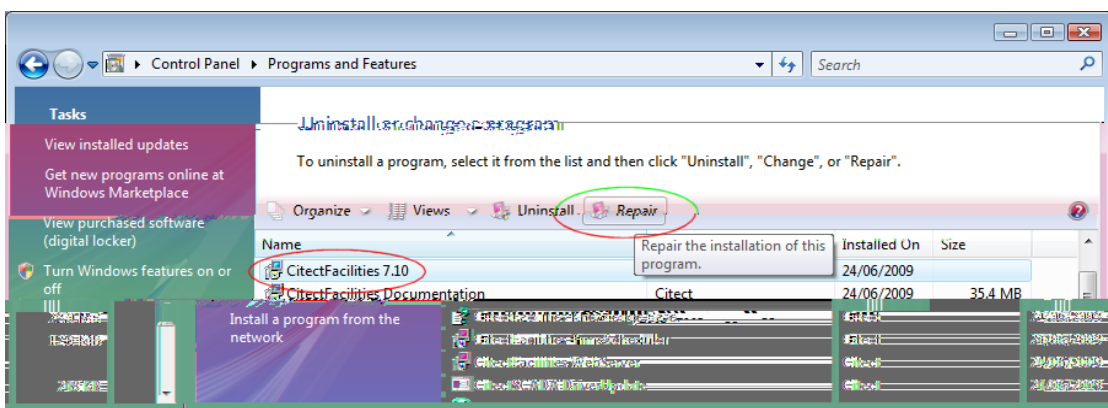

4.

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If you have User Access Control switched on in Windows Vista, the orange UAC dialog will be displayed before the uninstaller is launched. Select allow and proceed with the uninstallation. This is a limitation imposed by the User Access Control and cannot be avoided.

5.

                 on the side panel.

6.   CitectFacilities 7.10


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As in step 4, if User Access Control is on the orange UAC dialog will be displayed before the repair is launched. Select allow and proceed with the repair.
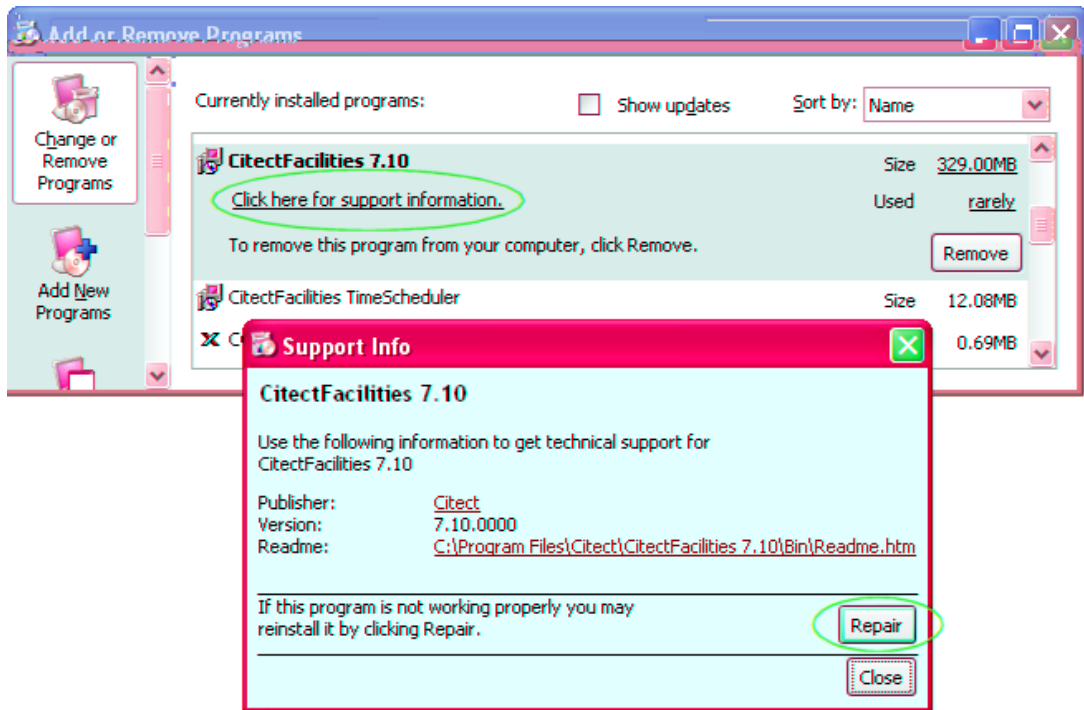
7. Open Citect Explorer, wait until upgrade has completed.

8. For any project using CSV_Include templates:

    a. Select the project in Citect Explorer.

    b. In Citect Graphics Builder, select Tools   Update Pages, then click Yes to continue.

9. Ensure the Incremental Compile   is turned OFF then recompile each project.

Follow these steps to uninstall:

1. *From the bin directory of your Citect installation, r*   CitectFacilities SCADA 7.10 Uninstallation Patch.exe   *(This will ensure that Service Pack 2 and future service packs may be uninstalled).* For further information, see Knowledge Base article Q5444.

2. Programs.

3.   follows:
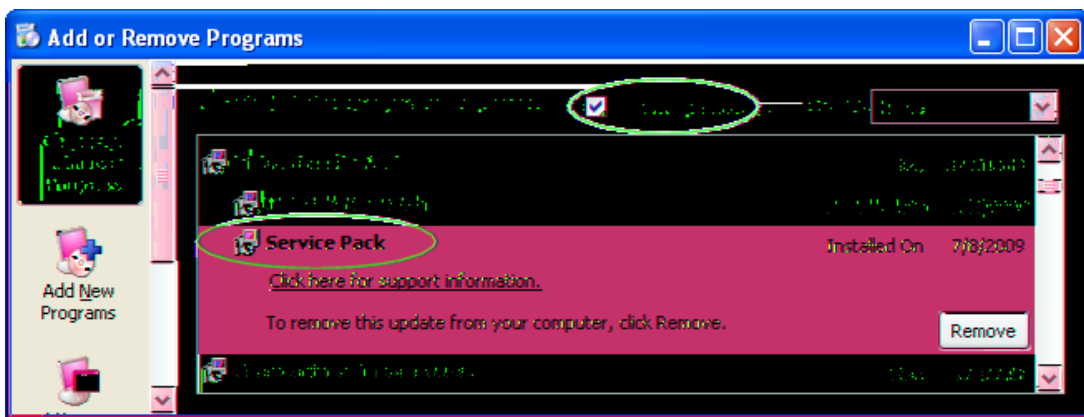
4. You should see the service pack listed as a sub-entry under the parent product.

5. Select this sub-

6. Once the removal is   CitectFacilities 7.10
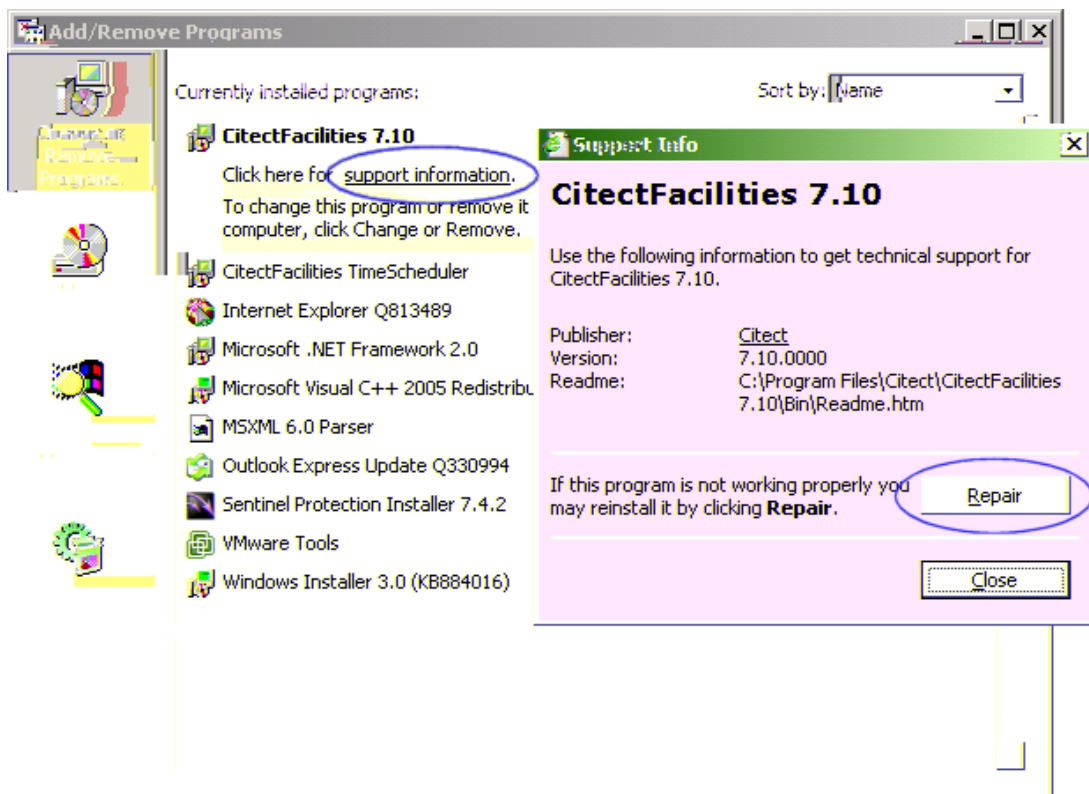   :

7.

8. Open Citect Explorer, wait until upgrade has completed.

9. For any project using CSV_Include templates:

    a. Select the project in Citect Explorer.

    b. In Citect Graphics Builder, select Tools   Update Pages, then click Yes to continue.

10.
recompile each project.

an uninstall of the service pack must be performed manually as follows:

1. From the bin directory of your Citect installation, r   CitectFacilities SCADA 7.10 Uninstallation Patch.exe *(This will ensure that Service Pack 2 and future service packs may be uninstalled).* For further information, see Knowledge Base article Q5444.

2. Open a command pro

3. For each product you wish to uninstall:

    a. Copy the uninstall command from Table 1 and paste into the command prompt, and press <enter>.

CitectFacilities SCADA 7.10 Service Pack 2	msiexec /uninstall {A95AFFC9-0736-4EF9-AF9D-62B95798D4C1} /package {3582EEF6-782C-4884-9278-E54D015B1AD3} /qb
CitectFacilities WebServer 7.10 Service Pack 2	msiexec /uninstall {C8D0318F-DC44-4B4E-BC8F-61180F547766} /package {B7A02776-729C-4594-AF91-EF18F349E3BE} /qb
CitectFacilities IDC 7.10 Service Pack 2	msiexec /uninstall {60E04D5F-A825-4931-9B80-D439F8122B6B} /package {75C5890B-59A9-4BDC-B490-1816F8F06174} /qb

       b.

       c.   You should now see the product name has returned to the original pre-service pack name.

       d.   CitectFacilities 7.10   e

       e.

4.   Open Citect Explorer, wait until upgrade has completed.

5.   For any project using CSV_Include templates:

       a.   Select the project in Citect Explorer.

       b.   In Citect Graphics Builder, select Tools   Update Pages, then click Yes to continue.

6.   Ensure the Incremental Compile   is turned OFF then recompile each project.

Listed below are the files that will be updated in the CitectFacilities *IDC* product after installing 7.10 service pack 2.

Install Path and File updated	Notes
_CommonFilesFolder_\Citect\Analyst.dll	
_ProgramFilesFolder_\Citect\CitectFacilities IDC 7.10\Bin\Citect32.exe	
_ProgramFilesFolder_\Citect\CitectFacilities IDC 7.10\Bin\Citect32.exe.config	
_ProgramFilesFolder_\Citect\CitectFacilities IDC 7.10\Bin\Client.dll	

Listed below are the files that will be updated in the *SCADA* product after installing 7.10 Service Pack 2.

_CommonFilesFolder_\Citect\MsgBox.ocx	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\AlarmServer.dll	
_CommonFilesFolder_\Citect\Analyst.dll	
_CommonFilesFolder_\Citect\CiOPCDrv.dll	English install only
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\Citect.CitectSCADA.TagGen.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\Citect32.exe	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\Config\Citect32.exe.config	
_CommonFilesFolder_\Citect\CiTrendArchiveFileOffset.dll	
_CommonFilesFolder_\Citect\CiTrendArchiveFileOffset8Byte.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\Client.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\ComputerSetupEditor.exe	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CSAPSI.dll	
_CommonFilesFolder_\Citect\Ct_ipc.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\Ct_ipc.dll	
_CommonFilesFolder_\Citect\CtApi.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtApi.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtBack32.exe	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtCicode.exe	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtCmp32.exe	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtDraw32.exe	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtEdit32.exe	
_CommonFilesFolder_\Citect\CtEng32.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtEng32.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtExplor.exe	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtOpc32.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CTOPC32.exe	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtProj.dll	
_CommonFilesFolder_\Citect\CtRes32.DLL	English install only
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtRes32.DLL	English install only
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtSetup.exe	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtUtil.dll	

_CommonFilesFolder_\Citect\CtUtil32.dll	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CtUtil32.dll	
_ProgramFilesFolder_\	

_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_File.ctF	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_File.ctg	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_Start.ctF	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_Start.ctg	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_Trend.ctF	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_Trend.ctg	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_TrendDouble.ctF	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_TrendDouble.ctg	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\pages.DBF	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\pgbutton.DBF	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\pgkey.DBF	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\pgtouch.DBF	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\Data\Facilities.ctz	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_ProcessAnalyst.ci	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\CSV_MessageBox.ci	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\Include\export.ci	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\ERRSTR.DBF	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\ERRSTR.NDX	
_CommonAppDataFolder_\Citect\CitectFacilities 7.10\User\CSV_Include\activex.zip	
_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\TagGen.dll	
Citect.Platform.DatasourceDevelopmentKit.BaseDatasource.dll	
Citect.Platform.Logging.TraceListeners.dll	
Citect.Platform.Net.Session.Null.dll	
Citect.Platform.Net.Session.Tcpip.dll	
Citect.Platform.Net.Session.Null.dll	
Citect.Platform.Net.SessionManager.dll	
Citect.Platform.PSI.BaseConnector.dll	
Citect.Platform.PSI.Connector.dll	
Citect.Platform.PSI.Interfaces.dll	
Citect.Platform.PSI.PSIClient.dll	

_ProgramFilesFolder_\Citect\CitectFacilities 7.10\Bin\CitectFacilities SCADA 7.10 Uninstallation Patch.exe

Listed below are the files that will be added to the *WebServer* product after installing 7.10 Service Pack 2.

Citect\client\710\CitectSCADAWebClient_7_10_2_14.cab

This Service Pack resolves the issues described below. If you have any hotfixes installed on your current version, please check if they are included in this service pack. If the hotfix is not included in the list below, or you have any concerns regarding the issues covered, please contact Support *before* installing this Service Pack.

Issue Number	Issue Title and Description
	When a user presses the tab, enter or return key on a popup form in the WebClient, the key is not processed as expected and has no effect. This problem has now been resolved.
	Some of the statistics (Minimum, Maximum, and Average) related to driver run time reported in Kernel:General and CitectInfo() were incorrect. In addition "Totals" always reported as 0. This issue has been resolved.
	Some code for dynamically optimizing writes was removed in v7.00, resulting in degraded write performance compared to v6.10. This code has now been reinstated.
	When Citect Runtime is launched with no command line arguments, it successfully locates the correct 'default' INI path, but it is not storing it in the correct location for later use with RsCite32.exe. The correct 'default' INI path is now stored in the correct location for later use with RsCite32.exe.
	Allow AlarmAck() to operate for ALM_CATEGORY and ALM_PRIORITY when it is being called from CiCode where there is no graphic page because no graphic page is required for AlarmAck(ALM_CATEGORY, ...) and AlarmAck(ALM_PRIORITY, ...).
	Doing a FileFind() loop to completion can cause subsequent FileFind() attempts to fail with the appearance of there being no files when in fact there are
	When InfoForm() function is called it shows a dialog box with Eng_full and Eng_full instead of Eng_Zero and Eng_Full. This worked in version 7.0 and was broken in V7.10. This has now been resolved.
	When a project is configured with redundant alarm servers, but only one alarm server is running, processing alarm updates may result in a crash. This has now been resolved.
	Under certain circumstances, errors encountered during an OFS tag import or refresh may result in the variable database being corrupted. This issue has now been resolved.
	String parameters passed into successive ActiveX/Citect event handler calls were being overwritten by the last call. This has now been fixed.

Cicode that is configured to run when a page exits via the "on page exit command" field may not be executed as expected. Further changes have been made from the Service Pack 1 fix. This issue has now been resolved.

Code has been added to allow customers to indicate whether or not they want the values rounded to format (default: Round to Format). New environment setting to support the selection in Citect.ini [CtAPI] RoundToFormat =1. Note: Default is RoundToFormat =1

Code to support rounding to tag format for REAL tag values without scaling has been added. REAL tag ENG values are stored as "double precision" floating point values to avoid precision problems when rendered as strings for CTAPI usage. Note: Trailing zero values are not taken into account by CTAPI for formatting regardless of the number of decimals specified in the format field.

UNTYPED CONSTANT on a graphics page (e.g. ?98?) defaults to type 'STRING'. Example: create a button on a popup page and set the "Disable when" field to ?98? Also, when used in comparisons, maths operations and logical operations, ?98? defaults to type 'STRING'.

Examples: (?98? = 1) // Fail ?98? * 10 // Fail NOT ?98? // Fail (?INT 98? = 1) // Ok ?INT 98? * 10 // Ok NOT ?INT 98? // Ok

Citect has been changed so that 'untyped constants' (genie values) are converted automatically.

Using CTAPI to retrieve fields that consisted only of commas and/or question marks would fail, due to improper escaping. This has now been fixed.

Numeric string values for CtAPI tag read and write should be in "InvariantCulture" format (use decimal points) regardless of local regional settings. This change does not affect client functionality.

e.g. Tag Debug TagRead will show 1000,26 (decimal comma) if the computer hosting the client is set to "French-France".

Cicode functions AssInfo, AssScaleStr, TagScaleStr were deprecated in v7.00, but have now been un-deprecated.

On the web client, an activex control would not display its vertical scroll bars. This has now been corrected.

When the Accumulator subsystem fails-over to the standby IOServer, its initial attempts to read the Standby Tags often fail. These failures where not being dealt with correctly. This has now been corrected.

Code has been added to optionally validate (default=validate) the tag names in the Ass function. New Citect.ini setting added; [General] TagAssMode Values: 0 - reserved for future use. 1 - Do NOT perform any validation checks before associating the tag. 2 - Check the local configuration to see if the tag exists before associating the tag (DEFAULT as this was the behaviour orginally in the product (pre v7). If

TagAssMode=2 and tag is not found, you get a CT_ERROR_NAME_NO_EXIST cicode error.

Alarm Servers did not re-establish redundancy after comms interruption and did not send property updates that were made (using AlarmSetTHresholdRec or AlarmSetDelayRec) while another server was shutdown, these should have been queued so that the updates could be sent to the server that was subsequently started

The internal scratch buffer used to hold the results from a "get text" message was not being cleared. This has now been fixed.

CSV_MessageBox() fixes for timeout, duplicates and cancel mode

Fixes and improvements have been made to the CSV MessageBox handling and control. Timeouts now work and return a new error code. Cancellation of a box has been improved. Invoking duplicate boxes has been fixed and now returns its own cicode error code. Users are advised to read the header of the cicode function CSV_MessageBox() in CSV_MessageBox.ci in the CSV_Include project directory, for full details.

When the user tries to modify the delay property of a digital alarm during runtime they receive a "PLC Server Write location is protected" error. This has now been resolved.

Text objects drawn on the Citect graphic pages during runtime were not being anti-aliased correctly (they did not look smooth). Disabled/Greyed text objects drawn on the Citect graphic pages during runtime were not being anti-aliased correctly (they did not look smooth) and were not drawn using a grey text color. Text objects are now drawn using correct anti-aliased (they now look smooth). Disabled/Greyed text objects are now drawn using a grey text colour (they now look smooth and disbled).

The shutdown code was changed to handle an exceptional condition.

On export of trend data to .dbf pen names (clustername+.+trendtagname) are truncated to 10 characters. Pen1=Cluster1.trend1, Pen2=Cluster1.trend000002, Pen3=Cluster1.trend000003 Export to .dbf Column1=Cluster1.t, Column2=Cluster1.t, Column3=Cluster1.t and data will be missing from the columns. The export code has been changed such that if any of the pen names are too long and all the pen names are from the same cluster then the cluster name is stripped. If any of the pen names are still too long then all of the pen names are changed to Pen1, Pen2, etc.

Two new Cicode functions have been introduced, which permit resolving a tag without actually subscribing to it. This may be of use in tuning for faster page changes. The parameters passed to each function are exactly analogous to TagSubscribe and TagUnsubscribe.

 For more information, refer to KB Q5579.

If a CiCode function name exceeds 32 characters in length an error, "tag already defined" will be generated at compile time. The compiler now allows CiCode function names to be up to 250 charaters in length before generating an error, "Function name is longer than 250   characters".

The Cicode function TimeSet was removed in 7.10 but has now been re-implement with limited functionality. TimeSet sets the new system time. You can set the time only on the computer which this function is called. Time/date functions can only be used with dates from 1980 to 2035.

Please note that if the user calls TimeSet but does not have privileges to change the system time they will receive a hardware alarm indicating this. Please note that when using Vista, UAC must be disabled in order for the time to be set.

Syntax: TimeSet(Time)

Time:

The time/date variable to which the new time is set. Sets the time on this computer only.

Return Value

The error status of the set.

Example:

! set the time to 11:43 on June 23 1993

time = StrToTime("11:43:00") + StrToDate("23/6/93");

TimeSet(time);

Changes in system time were not being notified to server processes, resulting in stale values being display and used for alarms, trends etc. This has now been fixed.

into memory that we controlled the lifetime of. This has now been corrected.

Four problems were found and fixed:

1. When clients disconnected abnormally, the cleanup procedures could result in a crash.

2. Zombied Group threads were continually trying to send update notifications to the clients that had abnormally disconnected.

3. Cached ctAPI protocol objects were improperly being used after they had been freed.

4. Memory containing Group objects were being deleted twice, in certain circumstances.

When the currently active io server is shutdown, switchover to a lower priority redundant server can be delayed for 10 seconds or more on client processes. Clients may exhibit #COM or become unresponsive during this time. This problem has now been resolved.

A certain combination of characters in a critical location can cause Rich Text printing to crash, this has been corrected.

When a project is configured such that it has modems on the primary IO Server but no COMX board on the standby IO Server, the Standby will incorrectly advise against starting and provide the option to shutdown. The error message "Failed to find a COMX board defined on this server. A COMX board definition is required for communication with remote I/O Devices" is displayed. This issue has now been rectified.

When a page is first opened, all of the Tags used by the page are subscribed using the current Page-Scan time. These subscriptions live for the duration of the page so when the Page-Scan time is changed, the existing subscriptions are not effected.

This has now been changed such that when you use the CiCode PageSetInt(-2,...) command, it now re-subscribes all of those Tags using the new Page-Scan time.

Testing ran a series of tests with a large number of malformed CtAPI messages to test V7.0 security. Three malformed messages provoked failures. The code that handles CtAPI messages was changed to deal with the malformed messages and prevent any failures or warning conditions.

Sometimes when the webclient is started it does not display the configured start up page. This issue has been resolved.

While using timestamped digital alarms, users may find that a crash may occur during shut down. This problem has now been resolved

When using network redundancy via multiple Network cards, complete network failure on all cards may result in a client displaying stale data instead of correctly flagging the tags as Bad Quality and forcing the display of #COM. This issue has now been resolved.

CSV_Math_Rounddown() and CSV_Math_Truncate() for some input values produced incorrect results due to rounding off at inappropriate points in the Cicode. This has been rectified.

When a user enters a shift key combination on a dynamic object, no character is displayed. For example if the user types "shift + f" on a dynamic object the 'F' character is expected to be displayed however no character is displayed.

Reportserver did not run (execute reports) when an Output device had not been specified in the reports form. This was introduced when Bug 40006/Bug 42531 was fixed. The code has been changed to allow reports to be processed when there is no output device.

An inconsistency in the way caches were updated across the IOServer may result in flickering values on screen. This has now been corrected, so that all caches in the IOServer behave according to the [Code]WriteLocal ini parameter.

During initialisation the system loads up certain server dlls(e.g. IOServer and TrendServer). The system was not checking whether or not the load was successful. The system now checks for a failed dll load and aborts with a error message. This issue has been resolved.

The PSI connector was not proactively sending datasource notification messages when a new session was connected. Thus, changeover only occurred when the next resolve period expired, and differed greatly from one client to the next. This has been fixed by forcing a re-resolve when a new, higher priority datasource comes online.

Invalid page scan time settings were accepted by the cicode function PageSetInt(), with the use of these settings possibly resulting in a crash. This issue has now been corrected.

Values written to tags were being written out of order in some cases. For example, the sequence TagWrite("intTag1", "1"), TagWrite("intTag3", "12345"), TagWrite("intTag2", "2"), TagWrite("intTag3", "3") could result with intTag3 having the incorrect value of 12345. This issue has now been corrected.

These fixes are included in Service Pack 2.

Issue Number	Issue Title and Description
	Sometimes when switching between pages or other operations, the alarm page or banner will go blank. This has now been fixed.
	In systems with many units spread across multiple IOServers, and where there are tags in a cluster that are not defined on all IOServers, the IOServer processes may display unusually high CPU usage. This was caused by those servers trying to service tags not defined on that server, resulting in unnecessary checks to find out if a tag exists or not. This has now been fixed.
	Networks where there is high packet-loss or high latency may experience an issue where server processes suffer unusually high CPU in the Tran.Task.Delay task. This is because connection attempts are timing out and not being correctly cleaned up. This issue has now been fixed.
	In versions 7.0 and 7.10 it is not possible to run more than one I/O server from a cluster on a single machine. On many large sites the scalability of the I/O server processes is a significant limiting factor so this restriction has now been lifted.
	A graphic page containing a MS San Serif font or text with the embossed style is not correctly converted when upgraded to version 7.10. This problem has been fixed. Please note that projects with this problem need to be restored from the pre-Version 7.10 version of the project files. This is because the problem lies within the generated .ctg files produced during the upgrade process; therefore, requiring the .ctg files to be re-created.
	Using the IFDEF macro with a fully qualified tag name did not work, because the cluster was stripped out. This has now been fixed.
	At startup the trend server was throttling the rate at which trend files are created according to [Trend]BytesWrittenBeforeSleep (intended to be a runtime only throttle), and this value was being capped at 32768 bytes. This has been fixed by introducing a new parameter [Trend]FileCreationWriteSize to control the rate at which trend files are initialised (whether created at startup or runtime). Its default value is 16384 bytes, with valid values being in the range 1 to 2147483647. Internal testing has shown optimal performance with values of 327680 bytes or lower. File writes larger than this appear to be batched in chunks of 65536 bytes, reducing the performance benefit. Environmental factors may alter this threshold.
	When a new alarm summary entry was added with AlarmSumAppend (or AlarmSumAppendEx) cicode function, it would not appear in client if SummarySort was set to 1 in [Alarm] section of citect.ini file. This problem has been fixed.

Some systems will notice an extended delay (often 10 to 15 or more seconds) when switching from an active I/O server to a secondary I/O server when the SCADA system is shutdown cleanly. This was caused by the networking layer not being shutdown at an appropriate point in the shutdown sequence. This issue has now been fixed.

This enhancement allows a user to sort alarms by "Type". Currently users can sort alarms via Cicode funtion AlarmSetInfo by "Tag", "Name", "Category", Priority, "Area", "Priv", "Time", "State", and Cluster and . "Type" sorting orders an alarm into four different categories which are unack, ack, cleared and disabled.

AlarmSumSplit now has the following signature: INT AlarmSumSplit (INT Index [,STRING ClusterName=""] [,LONG onTime = 0] [,LONG onMilli = 0] [,INT bRedundant = FALSE]) By default, when none of optional parameters are provided, the behaviour of this function is unchanged - it creates a new event based on existing event with given index, setting onTime and AckTime of newEvent to current time. OffTime of original alarms is set to onTime of newly created alarm. If original event's OffTime is already set (not zero), no split is performed. When using AlarmSumSplit in a new way, onTime and onMilli must be provided - they are used to set OnTime and OnMilli of newly created event. Before event is split, function performs search for existing event with time equal to time and milliseconds provided. If such event already exists, a condition known as time conflict occurs and no split is performed. -1 is then returned to cicode and user error CT_ERROR_ALARM_TIME_CONFLICT (0x204) = 516 is set. User code must then check error code by calling IsError(). This condition indicates that user code can retry operation by providing altered timestamp (in most cases, increasing milliseconds value by 1 will be sufficient) AlarmSumSplit call now can be redundant. If bRedundant flag is set to true, server will first try to split event locally and if it succeeds, message is forwarded to redundant server, which then splits corresponding event if it exists on it. Note - it primary server could not split the event, redundant server will not be informed, i.e. it won't even try to split event too. Redundancy is off by default.

An internal buffer overrun was causing a corruption resulting in the active alarm list becoming corrupted. This problem has been fixed.

When many alarms are triggered at once (an "avalanche") there is a race condition potentially leading to a crash. This has now been fixed.

A crash may occur when the number of alarm records being processed exceeds the alarm cache size ([Alarm]CacheLength), due to the most recently used cache record being reused. This has now been fixed.

Some display clients may crash when retrieving event data from Alarm server, due to an internal race condition. This has now been fixed.

Every time AlarmSumSplit created a new event, it was always setting that new event as current event. This had side effects when the event being split was a completed event (which already has OffTime set) from the past but there was a newer incomplete event. This leads to noticeable side effects on alarm summary page where events with certain timestamps may appear to be missing.

The default behavior for logging in v7.0 allowed the tracelog.dat file to grow without bound, eventually

leading to a crash. This was fixed by changing the default behavior to cap file size at 2MB. This can be overridden using the citect32.exe.config file.

Subscriptions automatically created for pages, as well as manually created by calling the TagSubscribe cicode function, were not honouring the [Code]WriteLocal parameter. Instead they were being forced to update the local cache on any write.

Added conversions to string type and trigger an error if the conversion fails

To improve performance, the system uses a local cache to store variable/tag values while executing a code slice. The local cache was not being updated for local array variables. If the code being executed within the given code slice involved a read from the local array variable the result was a bad value(the read is performed on the local cache which contains an old value).

A user triggers a popup via right clicking on one of the alarms from the section displaying the last 3 alarms on a CSV page and selecting the tag name. The popup opens correctly but displays the hardware alarm "Wrong Type For Text Display". This has now been resolved.

When the project editor find and replace feature is used, any open graphic pages are closed even when nothing was replaced on the page. This issue has been resolved.

When there are multiple page properties dialogs open, the information on the Event tab shows the settings from the most recently opened dialog on all dialogs. This has now been resolved.

DspPopupMenu() uses certain (special) characters as flags for various Menu adornments. Page Titles that have any commas (','), as well as any leading Tilde ('~') or Exclamation ('!') characters are now displayed without those characters in the toolbar drop-down menus.

Compiler no longer adds the extra space. (Recompile project for change to become evident.)

An error in the coding of the Database Exchange control meant that arguments were not being relayed to stored procedures. This has now been fixed.

The PageGoto Cicode function does not display the page on the active window if called from a popup page. This problem should only occur on multi-monitor CSV_Include projects with 1 monitor. This issue has been resolved.

Alarm synchronization between redundant alarm servers was being performed in an inefficient manner, leading to a long period of high CPU usage when starting a second server. This has now been corrected

with the duration of high CPU greatly reduced and startup times improved.

StrToLines("AA BB CC",1,nLines) would return no lines when it should return six lines

The function _FindCommentFromPen(), used by TrnPrint(), failed to account for the possibility of cluster-specific pen names e.g. cluster.pen. This has now been fixed.

In Citect Explorer, dynamically importing OPC tags from an OPC Server fails. This has now been fixed.

User cicode functions that use window handles were not correctly handling shutdown situations, resulting in a crash at shutdown. This has now been fixed.

This problem can arise when calling WinFree in background Cicode such as during the page event "while page shown". The issue has been resolved.

The implementation of the v7 UpdateStyle in the RedundantServer did not support alarm updates when SaveStyle=4. Thus the active server was sending updates but the redundant server was silently dropping them. This has now been fixed.

If rectangle fill uses color thresholds, a user intermittently would experience a crash in the display client.

The fix for this issue has been confirmed by customers, but the issue could not be reliably reproduced for internal testing.

	fixed.

An error in the implementation of HF710R140585 meant that customers using this HF to subscribe to more than 32768 tags would receive a negative handle passed to the callback function. This was only a problem for users of the abovementioned HF (or combo HF's including Bug 40585), and has now been fixed.

From v7, it was possible to leave a genie window having used the Pulse function, and for the 0 => 1 => 0 sequence not to occur. i.e. the tag was set but not reset. This would happen if the window was left before the 2 second period had expired. This bug has been fixed.

In Citect SCADA V7, the driver DataBase() function for remote devices can be called before InitChannel() which results in several problems - one of which is blockMax is then zero which causes the reported problem. This problem has been resolved.

This crash was possible when importing tags from OPC Servers that only supported v2 or later of the OPC specification. This issue has now been resolved.