

# ACATS Development Snapshot for future ACATS 4.0

Version 4devD

July 7, 2014

## What is this?

This is the fourth ACATS development snapshot for ACATS 4.0. This document lists the changes from ACATS 3.1 for the first version of the ACATS for ISO/IEC 8652:2012 (usually known as "Ada 2012"). As this is a snapshot, and work is ongoing, additional changes should be expected. Please address all comments and questions on this snapshot to the ACAA Technical Agent, [agent@ada-auth.org](mailto:agent@ada-auth.org).

These changes have no effect for implementations wishing to test ISO/IEC 8652:1995 (usually known as "Ada 95"), which should use ACATS 2.6 or ISO/IEC 8652:1995/AMD 1:2007 (often known as "Ada 2005"), which should use ACATS 3.1.

## What's new?

A few tests have been corrected or enhanced from their previous version. Most of the remaining submitted tests for Ada 2012 have been issued. A few new tests were constructed for case statements and case expressions.

## How to use this:

The tests can be accessed on the ACAA website at [www.ada-auth.org](http://www.ada-auth.org). The new and modified tests are available in the Mod\_4-1D.Zip and Tar files on the ACAA web site. See <http://www.ada-auth.org/acats.html#ACATS40>. Unlike regular releases, there is no access to individual test files; in particular the ACATS VCS has *not* been updated to contain these files.

These files only contain the differences from baseline ACATS 3.1. In order to obtain a complete view of the proposed ACATS, one would need to modify a copy of an ACATS 3.1 installation by placing the new tests into the appropriate subdirectories, replacing existing tests with the modified ones given here, and removing the tests as noted here. (It may be preferable to simply use these tests in a stand-alone manner until ACATS 4.0 is available.) Note that this list contains all of the changes from the baseline ACATS 3.1 version; no Modification List need be applied before making these changes.

Refer to the documentation for ACATS 3.1 (see <http://www.ada-auth.org/acats-files/3.1/docs/UG-1.HTM>) for general instructions on using the ACATS.

The tests are listed as "Removed", "Modified", or "Added", along with a brief explanation of the reason.

## Notice:

The ACAA has created and maintains the Ada Conformity Assessment Test Suite for the purpose of conformity assessments conducted in accordance with the International Standard ISO/IEC 18009 - Ada: Conformity assessment of a language processor. This test suite should not be used to make claims of conformance unless used in accordance with ISO/IEC 18009 and any applicable ACAA procedures.

## Lists:

**Test files removed ("withdrawn"):**

**B38105A.ADA** – Some cases are wrong for Ada 2012; replaced by new more comprehensive tests B3A1007 and B3A1A05 (along with the previously existing B3A1A01 and B3A1A02).  
**B65001A.ADA** – Functions now allow **in out** and **out** parameters, so test objective is junk. Operator cases now in B660003.  
**BC1202C.ADA** – Formal incomplete types now exist, so test objective is junk.  
**C62003A.ADA** – Replaced by C620001, with major improvements and eliminating 6.4.1(6.15/3) errors.  
**C750B01.A** – Renamed as the rules in question are now in 7.6.  
**CC3017C.ADA** – Replaced by CC30004, with major improvements and eliminating 6.4.1(6.15/3) errors.  
**F750B00.A** – Renamed as the rules in question are now in 7.6.

#### Test files modified:

**B393005.A** – Type Leaf\_1 should be illegal as explained in AI05-0097-1, added two additional cases.  
**B3A0007.A** – Replaced illegal test case.  
**B3A1001.A** – Corrected type UT1 to be tagged incomplete as the name indicates.  
**B3A1002.A** – Corrected type UT1 to be tagged incomplete as the name indicates.  
**B3A1003.A** – Changed objective and error requirements to reflect cases newly allowed by AI05-0162-1.  
**B3A1005.A** – Changed marking on cases legalized by Ada 2012 (they're not related to the test objective).  
**B3A1A01.A** – Heavily modified test as Ada 2012 rules require a different objective.  
**B3A1A04.A** – Heavily modified test as Ada 2012 rules make almost all uses of tagged incomplete types legal.  
**B490001.A** – Corrected syntax to be legal for Ada 2012 rules.  
**B641001.A** – Corrected to avoid running afoul of 6.4.1(6.15/3).  
**B650001.A** – Updated objectives for Ada 2012, added “covers” cases.  
**B950001.A** – Added commented out Ada 2012 cases.  
**B954005.A** – Added commented out Ada 2012 cases.  
**BA110141.A** – Changed marking on cases legalized by Ada 2012 (they're tested in other tests).  
**BA110142.A** – Changed marking on cases legalized by Ada 2012 (they're tested in other tests).  
**BC54002.A** – Added commented out Ada 2012 cases, also added explicitly aliased parameter test.  
**BC54003.A** – Added commented out Ada 2012 cases.  
**C452001.A** – Revised test and objectives to reflect changes of AI05-123-1 (record equality composes).  
**C761002.A** – Revised objective to narrow it as Ada 2012 has separate rules for anonymous access types. Note that the test itself is unchanged, only the comments and messages are changed.  
**CD2A21A.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CD2A22A.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CD2A22E.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CD2A23A.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CD2A24A.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CD2A24E.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CD2A31A.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CD2A32A.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CD2A32E.ADA** – Revised test to avoid running afoul of 6.4.1(6.15/3).  
**CXAC006.A** – Revised test to ensure that the temporary file has a unique name.  
**CXG2001.A** – Revised test to reflect (ancient) change in calculation of Model\_Mantissa..  
**IMPDEF.A** – Revised to add external names for tests CXB3017 and CXB3018.  
**REPBODY.ADA** – Changed ACATS version number.  
**TCTOUCH.ADA** – Changed ACATS version number.

#### Test files added:

**B324001.A** – New test, test resolution and legality rules for subtype predicates (part 1).  
**B324002.A** – New test, test resolution and legality rules for subtype predicates (part 2).  
**B324003.A** – New test, test resolution and legality rules for subtype predicates (part 3 – generic cases for arrays).

**B3A1006.A** – New test, split from B3A1A01 as the objective is greatly reduced by Ada 2012 and can't be tested without other errors for incomplete types.

**B3A10070.A** – New test containing the handful of objectives of B38105A not covered by other tests; adds tests of incomplete views imported from a limited view.

**B3A10071.A** – Other half of above (contains the actual test).

**B3A1A05.A** – New test, a more comprehensive test of one of the objectives of B38105A.

**B416001.A** – New test, checks that rules for indexing aspects are enforced.

**B433002.A** – New test, checks that subtypes with static predicates are allowed in array aggregate choices but discontinuous aggregates are not.

**B457001.A** – New test, check that static predicates are used for case expression coverage.

**B490003.A** – New test, check statically unevaluated expressions.

**B540001.A** – New test, check that static predicates are used for case statement coverage.

**B540002.A** – New test, check case coverage rules for modular types.

**B552A01.A** – New test, checks that an iterator must be reversible if **reverse** is used.

**B552A02.A** – New test, checks that an iterator uses the correct form for the type or object.

**B552A03.A** – New test, checks that the loop parameter of an iterator cannot be assigned in most cases.

**B641002.A** – New test, check legality rules for actuals corresponding to explicitly aliased parameters.

**B660003.A** – New test, check that operators (directly or via instantiation) may not have **in out** or **out** parameters.

**B680001.A** – New test, tries illegal expression function completions and other expression function errors.

**B730008.A** – Added to ACATS 3.1, unmodified from the ACATS 3.1 version.

**B730009.A** – Added to ACATS 3.1, unmodified from the ACATS 3.1 version.

**B950002.A** – New test, tries illegal completions for synchronization aspects.

**BC510210.A** – First part of new test, checks that the actual for a formal tagged incomplete type is tagged. Setup units.

**BC510211.A** – Second part of new test, checks normal cases that the actual for a formal tagged incomplete type is tagged.

**BC510212.A** – Third part of new test, checks limited with cases that the actual for a formal tagged incomplete type is tagged.

**BC510213.AM** – Fourth part of new test, main subprogram (no checks).

**BC510220.A** – First part of new test, checks that a formal incomplete is not misused in generic formal parameters.

**BC510221.A** – Second part of new test, checks that a formal incomplete is not misused in a generic specification.

**BC510222.A** – Third part of new test, checks that a formal incomplete is not misused in a generic body.

**BC510223.AM** – Fourth part of new test, main subprogram (no checks).

**BD11001.A** – New test, checks blanket rules for aspect specifications.

**BDD2004.A** – Originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.

**BDD2005.A** – New test, checks the same objectives as BDD2004, but using aspect specifications.

**BDE0011.A** – New test, checks that aspect specifications and expression functions freeze properly.

**C324001.A** – New test, checks predicate checks (success and failure).

**C324002.A** – New test, checks predicate checks for by-reference types.

**C415001.A** – New test, checks generalized references.

**C457001.A** – New test, tries normal operation of non-boolean if expressions.

**C457002.A** – New test, tries normal operation of boolean if expressions.

**C457003.A** – New test, tries normal operation of case expressions.

**C457004.A** – New test, tries overloading resolution of case expression selecting\_expressions.

**C458001.A** – New test, tries normal operation of “normal” quantified expressions.

**C540002.A** – New test, tries overloading resolution of case statement selecting\_expressions.

**C552A01.A** – New test, checks correct operation of generalized iterators.

**C552A02.A** – New test, checks correct operation of container element iterators.

**C611001.A** – New test, basic test of operation of pre- and post- conditions.

**C620001.A** – New test, modernized and somewhat more realistic version of C62003A.

**C660001.A** – New test, checks that a matching “/=” is created for explicitly declared “=” operators with a Boolean result. This tests the last untested objectives in subclause 6.6. So we have at least one non-trivial subclause that is completely tested.

**C680001.A** – New test, tries expression functions as completions and elaboration checking of them.

**C760A01.A** – Renamed from C750B01 as the rules are now in 7.6.

**C840002.A** – New test, tries **use all** <type>.

**C920001.A** – New test, checks task termination in extended return statements (AI05-0045-1).

**C950001.A** – New test, checks Synchronization aspect in synchronized interfaces.

**C954027.A** – New test, checks requeing on procedures of a synchronized interface.

**CC30004.A** – New test, modernized and somewhat more realistic version of CC3017C.

**CC51009.A** – New test, tries using generic formal incomplete types as intended in a signature package.

**CD30006.A** – New test, tries specifying Alignment for types and objects using aspect clauses.

**CD30007.A** – New test, tries specifying Size for types using aspect clauses.

**CDB4001.A** – New test, tries subpool allocation and deallocation.

**CDE0002.A** – New test, verifies that entities in aspect specifications and expression functions aren't frozen too early.

**CDE0003.A** – New test, verifies that entities instantiated as actuals corresponding to formal untagged incomplete types aren't frozen too early.

**CXA3005.A** – New test, tries character classification functions in Ada.Wide\_Characters.Handling.

**CXA3006.A** – New test, tries string conversion functions in Ada.Wide\_Characters.Handling.

**CXA3007.A** – New test, tries character classification functions in Ada.Wide\_Wide\_Characters.Handling.

**CXA3008.A** – New test, tries string conversion functions in Ada.Wide\_Wide\_Characters.Handling.

**CXA4035.A** – New test, tries string case insensitive comparison functions from A.4.10.

**CXA4036.A** – New test, tries string encoding routines defined in A.4.11.

**CXAC007.A** – New test, checks that Stream\_IO is preelaborated.

**CXAI001.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.

**CXAI002.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.

**CXAI003.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.

**CXAI004.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.

**CXAI005.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.

**CXAI006.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.

**CXAI007.A** – New test, test of Ada.Containers.Multiway\_Trees.

**CXAI008.A** – New test, test of Ada.Containers.Indefinite\_Multiway\_Trees.

**CXAI009.A** – New test, test of Ada.Containers.Indefinite\_Holders.

**CXAI010.A** – New test, test of Ada.Containers.Bounded\_Vectors.

**CXAI011.A** – New test, test of Ada.Containers.Bounded\_Doubly\_Linked\_Lists.

**CXAI012.A** – New test, test of Ada.Containers.Bounded\_Hashed\_Maps.

**CXAI013.A** – New test, test of Ada.Containers.Bounded\_Ordered\_Maps.

**CXAI014.A** – New test, test of Ada.Containers.Bounded\_Hashed\_Sets.

**CXAI015.A** – New test, test of Ada.Containers.Bounded\_Ordered\_Sets.

**CXAI016.A** – New test, test of Ada.Containers.Bounded\_Multiway\_Trees.

**CXAI017.A** – New test, test of Ada.Containers generic sorting procedures.

**CXAI018.A** – New test, test of iterators and indexing for Ada.Containers.Vectors.

**CXAI019.A** – New test, test of iterators and indexing for Ada.Containers.Doubly\_Linked\_Lists.

**CXAI020.A** – New test, test of iterators and indexing for Ada.Containers.Hashed\_Maps.

**CXAI021.A** – New test, test of iterators and indexing for Ada.Containers.Ordered\_Maps.

**CXAI022.A** – New test, test of iterators and indexing for Ada.Containers.Hashed\_Sets.

**CXAI023.A** – New test, test of iterators and indexing for Ada.Containers.Ordered\_Sets.

**CXAI024.A** – New test, test of iterators and indexing for Ada.Containers.Multiway\_Trees.  
**CXAI025.A** – New test, test of iterators and indexing for Ada.Containers.Bounded\_Vectors.  
**CXAI026.A** – New test, test of iterators and indexing for Ada.Containers.Bounded\_Doubly\_Linked\_Lists.  
**CXAI027.A** – New test, test of iterators and indexing for Ada.Containers.Bounded\_Hashed\_Maps.  
**CXAI028.A** – New test, test of iterators and indexing for Ada.Containers.Bounded\_Ordered\_Maps.  
**CXAI029.A** – New test, test of iterators and indexing for Ada.Containers.Bounded\_Hashed\_Sets.  
**CXAI030.A** – New test, test of iterators and indexing for Ada.Containers.Bounded\_Ordered\_Sets.  
**CXAI031.A** – New test, test of iterators and indexing for Ada.Containers.Bounded\_Multiway\_Trees.  
**CXAI032.A** – New test, more realistic test of iterators for Ada.Containers.Ordered\_Maps.  
**CXAI033.A** – New test, test of Ada.Containers.Unbounded\_Synchronized\_Queues.  
**CXAI034.A** – New test, test of Ada.Containers.Bounded\_Synchronized\_Queues.  
**CXAI035.A** – New test, test of Ada.Containers.Unbounded\_Priority\_Queues.  
**CXAI036.A** – New test, test of Ada.Containers.Bounded\_Priority\_Queues.  
**CXAIA01.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.  
**CXAIA02.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.  
**CXAIA03.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.  
**CXAIA04.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.  
**CXAIA05.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.  
**CXAIA06.A** – Container test originally added to ACATS 3.1, modified to add previously commented out Ada 2012 cases.  
**CXAIA07.A** – New test, test of Ada.Containers.Indefinite\_Multiway\_Trees.  
**CXAIA08.A** – New test, test of iterators and indexing for Ada.Containers.Indefinite\_Vectors.  
**CXAIA09.A** – New test, test of iterators and indexing for Ada.Containers.Indefinite\_Doubly\_Linked\_Lists.  
**CXAIA10.A** – New test, test of iterators and indexing for Ada.Containers.Indefinite\_Hashed\_Maps.  
**CXAIA11.A** – New test, test of iterators and indexing for Ada.Containers.Indefinite\_Ordered\_Maps.  
**CXAIA12.A** – New test, test of iterators and indexing for Ada.Containers.Indefinite\_Hashed\_Sets.  
**CXAIA13.A** – New test, test of iterators and indexing for Ada.Containers.Indefinite\_Ordered\_Sets.  
**CXAIA14.A** – New test, test of iterators and indexing for Ada.Containers.Indefinite\_Multiway\_Trees.  
**CXAJ001.A** – New test, simple test of Ada.Locales.  
**CXB30170.C** – C part of new test to test pragma Export.  
**CXB30171.A** – Exported procedure and object for new test to test pragma Export.  
**CXB30172.AM** – Test portion of new test to test pragma Export..  
**CXB30180.C** – C part of new test to test aspect Export.  
**CXB30181.A** – Exported procedure and object for new test to test aspect Export.  
**CXB30182.AM** – Test portion of new test to test aspect Export..  
**F552A00.A** – New foundation, for testing generalized iterators and container element iterators.  
**F760A00.A** – Renamed from F750B00 as the rules in question are now in 7.6.  
**FXAIA00.A** – Added to ACATS 3.1, unmodified from the ACATS 3.1 version.

**Unchanged test files included in the ZIP:** (These are included so that the entire source of a test is included in the ZIP file)

**BA110140.A** – Unchanged, other parts BA110141.A and BA110142.A are changed.