PERIOD COVERED:
June 2001 - July 2002

SUBMITTED BY:
Convener, ISO/IEC JTC1/SC22/WG14
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1. MANAGEMENT SUMMARY

1.1. JTC1/SC22/WG14 STATEMENT OF SCOPE
Development and maintenance of ISO/IEC Standards related to the programming language C.

1.2. PROJECT REPORT

1.2.1. COMPLETED PROJECTS
JTC1.22.20.01 – Programming Language C (Revision of ISO/IEC 9899:1990), this project was delivered by the publishing of ISO/IEC 9899:1999.

1.2.2. PROJECTS UNDERWAY
JTC1 NP 18037, Extensions for the programming language C to support embedded processors. This is a Technical Report type II.

JTC1 NP 19769, Specification for Additional Character Data Types to the Programming Language C. This is a Technical Report type II.

1.2.3. CANCELLED PROJECTS
None over this period.

1.2.4. COOPERATION and COMPETITION
Where appropriate, WG14 has established active liaisons with other SC22 working groups. There is no apparent direct competition with any other current SC22 working group.
2. **PERIOD REVIEW**

2.1. **MARKET REQUIREMENTS**

WG14 feels that it is responding to user community pressure and to implementers concerns by revising the ISO/IEC 9899 standard on schedule. WG14 believes this new ISO/IEC 9899:1999 answers these concerns and keeps the International Standard for the C programming language current with today’s programming trends and market. The evolution of Object Oriented programming, numerical extensions that were proposed by J11.1, internationalization, advancements in character set standardization, cross-language standards and cross-language bindings all were considered in the newly revised standard. These issues were also taken into consideration when request for the newly approved project JTC1 NP 19769 was submitted and the approved project JTC1 NP 18037. Most of these issues where considered during the technical discussions for the original ISO C Standard ISO/IEC 9899:1999. Please, see document ISO/IEC JCT 1/SC22 N2265 “Charter for the Revision of the C Standard” for more details.

2.2. **ACHIEVEMENTS**

WG14 has worked on Defect Reports, keeping the Defect Report Log current for 9899:1999, publishing a Technical Corrigendum 1. A new work item has also been approved, see ISO/IEC SC22 N3393, a Technical Report type II, “Specification for Additional Character Data Types to the Programming Language C”. WG14 has made very good progress on the TR 18037, submitting WG14 N972 to SC22 for PDTR ballot, see SC22 N3395.

2.3. **RESOURCES**

WG14 meets two times per year in co-located technical sessions with the US committee J11. Over the past year, WG14 has timed its technical sessions to coincide with WG21, allowing those technical experts that would like to attend both technical sessions the opportunity to do so. (The WG14 Convener would like to thank the WG21 Convener for the extended effort it takes to coordinate common meeting locations and liaison between the two working groups.) Twelve countries participate by attending these meetings or by being involved in the technical discussions that take place over the reflector. The countries are: Australia, Canada, Denmark, France, Germany, Ireland, Japan, Netherlands, Norway, Sweden, UK, and the USA.

WG14 has been monitoring the cross-language standards activities, and are using the ISO/IEC JTC 1/WG20 guidelines on extended characters. WG14 has also keep apprised of the requirements of the LIA-1, 2 standards.

WG14 liaison appointments are:

<table>
<thead>
<tr>
<th>Group</th>
<th>Name</th>
<th>Person assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>WG11</td>
<td>Language Independent Datatypes</td>
<td>Keld Simonsen</td>
</tr>
<tr>
<td>WG15</td>
<td>Posix</td>
<td>Keld Simonsen</td>
</tr>
<tr>
<td>WG20</td>
<td>Internationalization</td>
<td>Keld Simonsen</td>
</tr>
<tr>
<td>WG21</td>
<td>C++</td>
<td>Group liaison assigned¹</td>
</tr>
</tbody>
</table>

³ Dinkumware, Glassborow, Kristoffersen, Oracle, Plum Hall, Perennial, Sun Microsystems

3. **FOCUS NEXT WORK PERIOD**

WG14 will focus on the new work item JTC1 NP 19769, a type II technical report; see ISO/IEC SC22 N3356 and ISO/IEC SC22 N3393, and work item JTC1 NP 18037. The Committee
discussed several other possible new work items, but has not reached consensus on any of the remaining items yet. The items identified to discuss are:

1. Conformance  
2. Sequence Points  
3. Time  

3.1. DELIVERABLES  
None.

3.2. STRATEGIES  
WG14 believes that routine handling will suffice to complete the progress desired.

3.3. RISKS  
No problems are anticipated.

3.4. OPPORTUNITIES  
None.

3.5. WORK PROGRAM PRIORITIES  
WG14 will concentrate on the new work item NP 19769 and work item NP 18037, however WG14 will still respond to Defect Report logged for the current ISO/IEC 9899:1999 Standard.

4. OTHER ITEMS

4.1. POSSIBLE ACTION REQUESTS AT FORTHCOMING PLENARY  
None

4.2. WG14 SUPPORTS SC22 N2718  
WG14 supports the action requested in ISO/IEC JTC 1/SC22 N2718.

4.3. PROJECT EDITORS  
The following individuals have been appointed project editors and backup project editors:

JTC1.22.20.01 Programming Language C (Revision of ISO/IEC 9899:1990)  
Larry Jones (Project Editor), Douglas Walls (Backup Project Editor)

JTC1 NP 18037, Extensions for the programming language C to support embedded processors.  
Willem Wakker (Project Editor)

JTC1 NP 19769, Specification for Additional Character Data Types to the Programming Language C.  
Nobuyoshi Mori (Project Editor)

4.4. ELECTRONIC DOCUMENT DISTRIBUTION  
WG14 has conducted much of its detailed technical discussion using email reflector provided by the Danish UNIX Users Group and Keld Simonsen.
WG14 also has an ftp and Web site provided by courtesy of the Danish UNIX Users Group and Keld Simonsen.

WG14 is now providing all the appropriate committee documents on the Committee Web site, reducing the need for paper mailings.

4.5. RECENT MEETINGS

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Organizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-27 Jun 97</td>
<td>London, UK</td>
<td>BSI, Plum Hall Europe</td>
</tr>
<tr>
<td>20-24 Oct 97</td>
<td>Menlo Park, CA USA</td>
<td>ANSI, Sun Microsystems</td>
</tr>
<tr>
<td>02-06 Feb 98</td>
<td>Frisco, CO USA</td>
<td>ANSI Keaton Consulting</td>
</tr>
<tr>
<td>23-27 Jun 98</td>
<td>Copenhagen, Denmark</td>
<td>Danish Standards</td>
</tr>
<tr>
<td>05-09 Oct 98</td>
<td>Santa Cruz, CA USA</td>
<td>ANSI, SGI/Cray</td>
</tr>
<tr>
<td>01-05 Feb 99</td>
<td>Portland, OR USA</td>
<td>ANSI, Intel Corp.</td>
</tr>
<tr>
<td>21-24 Jun 99</td>
<td>London, UK</td>
<td>BSI</td>
</tr>
<tr>
<td>18-23 Oct 99</td>
<td>Kona, HI USA</td>
<td>ANSI, Plum Hall</td>
</tr>
<tr>
<td>10-14 Apr 00</td>
<td>Tokyo, Japan</td>
<td>ITSCJ, NEC</td>
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<tr>
<td>16-20 Oct 00</td>
<td>Toronto, Canada</td>
<td>SCC, IBM</td>
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<tr>
<td>23-27 Apr 01</td>
<td>Copenhagen, Denmark</td>
<td>Danish Standards</td>
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<tr>
<td>16-20 Oct 01</td>
<td>Redmond, WA USA</td>
<td>ANSI, Microsoft</td>
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<tr>
<td>15-19 April 02</td>
<td>Curacao, Netherlands Antilles;</td>
<td>NNI, Netherlands</td>
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</tbody>
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4.6. FUTURE MEETINGS

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Organizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>14-20 Oct 02</td>
<td>Santa Cruz, CA USA</td>
<td>ANSI, Dinkumware</td>
</tr>
<tr>
<td>31-04 Mar/Apr 03</td>
<td>Oxford, UK</td>
<td>BSI</td>
</tr>
<tr>
<td>15-21 Oct 03</td>
<td>Kona, HI USA</td>
<td>ANSI, Plum Hall</td>
</tr>
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</table>

2 These dates are preliminary.