CCCII Software for the CJK OPAC: University of Oregon Field Test Report

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Introduction

At present the on-line public access catalog (OPAC) still remains the primary tool for patrons searching for materials in the academic and research libraries in North America. The performance of an OPAC has a direct impact on how effectively a library provides information and services to its users. The increasing demand for information access to a wide spectrum of resources in various formats constantly challenges library professionals, library automation scientists, and library system vendors to deliver more powerful and sophisticated OPAC systems with higher performance levels at lower costs. The OPAC systems in East Asian libraries have to meet even more stringent and demanding criteria, since they should not only display both vernacular and romanized bibliographic information but also enable users to input and manipulate vernacular data in bibliographic records. An OPAC that does not handle vernacular data cannot truly function as a Chinese/-Japanese/Korean on-line public access catalog (CJK OPAC) because it cannot deliver the essential vernacular bibliographic information that effectively helps identify and retrieve a bibliographic entity. Moreover, transliterated or romanized descriptions of CJK materials are often too ambiguous and confusing to be helpful to users. Innovative Interfaces, Inc. was the first library system vendor to install the integrated automation system with full CJK capability in East Asian libraries in the United States and Asia and has recently released the Chinese Character Code for Information Interchange (CCCII) software that marks another significant success in the development of CJK OPAC systems.

The University of Oregon Library continues to seek advanced technology and information tools that will enhance the total bibliographic access to research materials in various languages and formats in the Library collections. Incorporating the CJK module into the library's on-line catalog to improve user access to CJK vernacular materials is one of the efforts we have made to enhance the capability and overall performance of our OPAC system. Our first INNOPAC CJK OPAC Workstation is currently functioning smoothly, and the Library administration ultimately intends to install more public CJK OPAC terminals at various locations on campus. Because of our Library's long-term commitment and interest in the INNOPAC CJK system, Innovative Interfaces, Inc. offered us the opportunity to test the CCCII software for CJK OPAC in the summer of 1994. With technical support from the Library Systems Department, we concluded our test of this new software version of CJK OPAC in the fall of 1994. Throughout the entire testing process we were not only interested in discovering the major features of the CCCII software, but also in examining the differences between this software version and our hardware-supported CJK OPAC—the INNOPAC CJK CCCII Workstation. In my previous article, "CJK OPAC at the University of Oregon Library," I discussed in detail the system features of the INNOPAC CCCII CJK Workstation, including the input methods, searching, editing, and inputting of CJK

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bibliographic records, etc. Since these features are virtually all available on the CCCII software CJK OPAC, to avoid repetition, I will focus in this report on those new features of the CCCII software that are not available on the CCCII CJK Workstation—the hardware-supported CJK OPAC.

**Overview of the CCCII Software**

The CCCII software facilitates the display of Chinese, Japanese, and Korean characters on the screen of a standard IBM PC-compatible computer and no longer requires highly specialized hardware support. It also offers several standard keyboard input methods that enable users to key CJK characters as well as two methods of communication with INNOPAC: a serial connection via a COM port and a TELNET connection via Ethernet.

This software requires that the PC-compatible be equipped with the following:

- An 80386 or later CPU (i.e., 80486, Pentium, etc.)
- At least 4 MB of RAM
- At least 10 MB of free hard disk space
- MS DOS 5.0 or higher
- One 3.5" 1.44 MB high-density diskette drive
- Either a serial port (or serial connection) or an Ethernet card (for connection over Ethernet)
- A standard VGA or super VGA video adapter with appropriate monitor. The super VGA adapter (also known as 'SVGA') must be based on one of the following chipsets:
  - OAK OTI067, OTI077, or OTI087
  - Tseng Labs ET3000 or ET4000
  - Trident 8900C or 9000
  - S3 Incorporated 86C911 or 86C924

We chose the Ethernet connection and loaded the CCCII software on a 486 PC-compatible computer that can function as a CJK OPAC terminal and is equipped with a high-performance color VGA monitor, a super VGA video adapter, and an Okidata Microline 393 Plus printer.

Standard VGA adapters support the display of characters using the Ming font in a 16 x 16 pixel matrix. Super VGA adapters will deliver a higher quality display with characters defined in a 24 x 24 pixel matrix using the Ming, Sung, Kai, or Hei fonts.

**Special Features of the CCCII Software**

1. **Japanese and Korean Phonetic Input Methods**

   The most remarkable improvement of the CCCII software is the availability of Japanese and Korean phonetic input methods. Previously, although the Japanese and Korean bibliographic records could display on a CJK OPAC terminal without any problem, the phonetic input methods for creating Japanese *kanji* and Korean *Hancha* were not available, which
was the major limitation of the INNOPAC CJK module. The CCCII software has successfully corrected this drawback. Japanese kanji, hiragana, and katakana characters can now be created by using the Hepburn phonetic input method. Korean hangul and Hancha characters can now be created by using the McCune-Reischauer phonetic input method.

2. Enhanced CJK Authority Control

The CCCII software's full capability of creating CJK characters is crucial to the enhancement of CJK authority control. CJK catalogers all experience frustration in verifying and differentiating multiple personal names that have different vernacular forms yet the same romanized form. The INNOPAC CJK system is the only system to date that enables catalogers to effectively resolve this problem, giving us the freedom to implement CJK authority control. At present we can enter vernacular data in name authority records by inputting a parallel vernacular 100 field. These name authority records can be created locally or downloaded from the OCLC Online Authority File. The vernacular name headings in the authority records are indexed in INNOPAC and are searchable in the technical mode. Incorporating vernacular data greatly improves the quality of authority records and streamlines the process of authority work. The advantage of the INNOPAC CJK system in CJK authority control is widely recognized and it also contributes to the overall strength of the system. Figure 1 shows examples of CJK name authority records with parallel vernacular 100 fields.

3. Screen Fonts

With the Super VGA adapter, the CCCII software supports the display of the CJK characters in four screen fonts. The Ming font contains 23,000 characters; the Sung, Kai, and Hei fonts each contain 16,000 characters. In general the character file supported by the CCCII software is substantially smaller than the one on the hardware-supported CCCII CJK Workstation which is equipped with a CJK character ROM pattern board and supports the full East Asian Character Code CJK character set as well as the 53,000 character CCCII character set.

We have examined over five-hundred CJK records on the CCCII software OPAC and found that the Ming font contains the most frequently used characters and thus is adequate to display a very high percentage of CJK records, with only a few rarely used characters missing. The Sung, Kai, and Hei fonts lack some commonly used characters and cannot satisfactorily display a large number of CJK records. When certain characters are missing, they result in black squares in records. Figures 2 and 3 show the same record displayed in the Ming font on the hardware-supported CCCII CJK Workstation and on the CCCII software OPAC, respectively. Please notice that two characters in the title are missing as displayed on the software OPAC terminal, while the entire title displays perfectly on the hardware-supported CJK OPAC terminal. Although the large character file available on the hardware CJK OPAC is definitely beneficial and advantageous, we find that the smaller character set in the Ming font on the CCCII software adequately provides a satisfactory display of CJK records for users.
Conclusions

After five months of testing and analysis we have found that the CCCII software meets all of the requirements of supporting the display of CJK vernacular records in the OPAC and also supports various database maintenance functions. The major strengths of this new software include the enhancements for Japanese and Korean phonetic input methods, its low cost, expanded access to CJK bibliographic records in the local database and in other remote CJK on-line catalogs around the world. One copy of the CCCII software costs about $750, compared to a hardware-supported CCCII CJK OPAC Workstation that costs $5,000 per unit. Since the CCCII software is no longer hardware specific, it can run on any reasonably good PC, which means users will enjoy easier and expanded access to CJK materials from the OPAC terminals in the library or from personal computers in the office or at home. One can use the CCCII software to access globally other CJK OPACs via an Internet connection. Figure 4 shows a bibliographic record on the OPAC of Academia Sinica in Taiwan, which was printed from the CCCII CJK OPAC terminal at the University of Oregon Library. Figure 5 shows two bibliographic records on the OPAC at the Hong Kong University of Science and Technology. The installation of additional CJK OPAC terminals will make the on-line catalog at the University of Oregon Library a truly multilingual bibliographic tool.

The success of the CCCII software represents a very significant accomplishment in the evolution of the CJK OPAC. This software has demonstrated a great potential to enhance user access to CJK-language materials and to improve user services, resource sharing, and authority control in East Asian libraries in North America. Although the INNOPAC CJK system has already achieved its proven success in handling vernacular bibliographic information and in bringing the CJK OPAC system from the blueprint stage into reality, the new technology together with more sophisticated user needs and increased requirements for higher levels of OPAC performance will continue to reshape and improve the system during its future phases of development. We can expect that the implementation of the INNOPAC CJK system at the National Library of Australia will open a window to the next generation of CJK OPAC systems that will offer a whole array of exciting new features and enhancements.

Acknowledgments

Testing of the CCCII software for CJK OPACs was a project accomplished by collective effort. The support of Innovative Interfaces, Inc. is greatly appreciated. Mr. John Helmer, Head of the Systems Department at the University of Oregon Library, coordinated the test project. Mr. Richard Turk and Miss Lisa Sieracki, also of the Systems Department, provided valuable technical support for the test.

References


Figure 1 -- CJK name authority record as displayed in technical mode

A11604207
Last updated: 03-06-95 Created: 03-13-90 Revision: 3

01 ACODE1: 02 ACODE2: 03 ASUPPRESS:
04 001 n 83166469
05 008 830722n acannaab a aaa
06 040 DLCicDLCidORU
07 053 PL2698.H73
08 100 10 Wang, Shih-chen, id1526-1590
09 100 10 Wang-shih-chen, id1526-1590
10 400 10 Wang, Shih-cheng, id1526-1590
11 400 10 Wang, Yuan-mei, id1526-1590
12 667 UO REVISED RECORD
13 670 Hsiao-hsiao-sheng, Chin P{176}ing Mei, 1982 (a.e.) lbtp. (Wang Feng-chou) p. 2 (real name Wang Shih-chen, t. Yuan-mei, h. Feng-chou)
14 670 LC data base, 3/19/83 lb(hdg.: Wang, Shih-chen, 1526-1590)
15 670 Chung-kuo wen hsueh chia ta tz{176}u tien, 1934: lbp. 1148 (Wang Shih-chen, 1526-1590)

A11216232
Last updated: 03-06-95 Created: 03-10-90 Revision: 3

01 ACODE1: 02 ACODE2: 03 ASUPPRESS:
04 001 n 81028069
05 008 810805n acannaab a aaa
06 040 DLCicDLCidORU
07 100 10 Wang, Shih-chen, id1634-1711
08 100 10 Wang-shih-chen, id1634-1711
09 400 10 Wang, Yu-yang, id1634-1711
10 400 10 Wang, Shih-cheng, id1634-1711
11 400 10 Wang, Shih-chen, id1634-1711
12 400 10 Zhang, Yan, id1634-1711
13 667 UO REVISED RECORD
14 670 Author’s Ch{176}ung chi Yu yang shu pa, 1958

A1264495x
Last updated: 08-18-93 Created: 06-07-93 Revision: 6

01 ACODE1: 02 ACODE2: 03 ASUPPRESS:
04 040 ORU
05 100 10 Chang, Yen, id1912-
06 100 10 Zhang, Yan, id1912-
07 400 10 Zhang, Yan, id1912-
08 678 Evaluated

A12250156
Last updated: 08-06-93 Created: 09-05-91 Revision: 3

01 ACODE1: 02 ACODE2: 03 ASUPPRESS:
04 001 721440
05 008 840822n acannaab a aaa nzmn
06 010 n 82024259
07 040 DLCicDLC
08 100 10 Chang, Yen, id1248-1320?
09 100 10 Zhang, Yan, id1248-1320?
10 400 10 Chang, Shu-hsia, id1248-1320?
11 400 10 Zhang, Yu-t{176}ien, id1248-1320?
12 400 10 Chang, Yu-t{176}ien, id1248-1320?
13 670 Author’s Tz{176}u yuân, 1968
Figure 2 -- Record as displayed on INNOPAC CCCII CJK workstation

<table>
<thead>
<tr>
<th>TITLE</th>
<th>中國少女的坦途路 / 策劃余德慧 ; 執筆王幼珍 , 顧瑜君</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDITION</td>
<td>初版</td>
</tr>
<tr>
<td>PUBLISHER</td>
<td>台北市 : 張老師出版社 , 民國80 [1991]</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>13, 210 p. : ill. ; 21 cm.</td>
</tr>
<tr>
<td>ALT AUTHOR</td>
<td>余德慧 , 1951-</td>
</tr>
<tr>
<td>SERIES:</td>
<td>中國人的心理 系列 : 11.</td>
</tr>
<tr>
<td>SUBJECTS</td>
<td>Delinquent girls --Taiwan.</td>
</tr>
<tr>
<td></td>
<td>Youth --Taiwan --Conduct of life.</td>
</tr>
<tr>
<td>LOCATION CALL #</td>
<td>CHINESE HV9212.A5 C48 1991</td>
</tr>
<tr>
<td>STATUS AVAILABLE</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3 -- Record as displayed on CCCII software CJK OPAC

<table>
<thead>
<tr>
<th>TITLE</th>
<th>中國少女的坦途路 / 策劃余德慧 ; 執筆王幼珍 , 顧瑜君</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDITION</td>
<td>初版</td>
</tr>
<tr>
<td>PUBLISHER</td>
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</tr>
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<td>DESCRIPTION</td>
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<td>ALT AUTHOR</td>
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<tr>
<td>SERIES:</td>
<td>中國人的心理 系列 : 11.</td>
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<td>SUBJECTS</td>
<td>Delinquent girls --Taiwan.</td>
</tr>
<tr>
<td></td>
<td>Youth --Taiwan --Conduct of life.</td>
</tr>
<tr>
<td>LOCATION CALL #</td>
<td>CHINESE HV9212.A5 C48 1991</td>
</tr>
<tr>
<td>STATUS AVAILABLE</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4 -- Record printed from the OPAC of Academia Sinica in Taiwan

書名 中國 . 現代 . 美術國際學術研討會論文集 ; 兼論日韓現代美術 =
International conference, China, modernity and art: and a
discussion of modern art in Japan Korea / 劉天課等編輯
出版項 台北市 : 台北市立美術館 , 民80 [1991]
檢核項 264, [23]面 ; 圖 ; 30公 分
(平裝)
附 註 含參考書目
主題 美術 -- 中國 -- 論文 , 講詞 等 csh.
其他作者 劉天課 編輯
其他書名 International conference, China, modernity and art: and a
discussion of modern art in Japan Korea.
館藏地 索書號 747.072 7633
1 > 傳斯年圖書館 狀態 在架上
### Figure 5 — Records from the OPAC of Hong Kong University of Science and Technology

| TITLE | 阿诗玛 [videorecording] = Ashma / 编剧葛炎，刘琼；导演刘琼；上海海燕电影製片厂出品 |
| IMPRINT | [Peking] : China Film Export & Import Corp., [1988?] |
| DESCRIP. | 1 videocassette (89 min.) : sd., col. ; 1/2 in. |
| SERIES | 中國錄像電影；1147 = China video movies；1147. |
| NOTE | Based on a legend of the Sa-ni people in China's Yunnan Province, this film tells of the love and devotion between A-shih-ma and the shepherd boy A-hel, and their fight against the evil forces which worked against their union. |
| SUBJECT | Motion pictures, Chinese. Feature films. Legends --China --Yunnan Province --Drama. |
| ALT AUTHOR | 刘琼
杨丽坤
包斯尔
上海海燕电影製片厂
云南人民艺术剧院歌舞剧团
China Film Export-Import Corporation. |
| LOCATION | CALL # |
1 > MEDIA RESOURCES | PN1997.A123 A68 1988 | AVAILABLE |