The Accounting Office Interface: Syracuse University

By: Rosann Bazirjian and Randall Ericson

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CERTAIN FIGURES OR CHARTS ARE OMITTED FROM THIS FORMATTED DOCUMENT.

This presentation will discuss Syracuse University Library's invoice interface with our university's fund accounting system. Interfacing is the way two independent, automated systems meet and communicate with each other. Our Library is on the NOTIS system, and our acquisitions subsystem has been in place since July, 1991. Our accounting office uses a vendored system from Walker Interactive Products, which handles the accounts payable component of that system. Our acronym for the system is CAPPS, which stands for Computerized Accounts Payable Purchasing System. Prior to July, 1991, we had a locally developed system, which did, indeed, interface with the accounting office as well. We therefore had some previous experience in this area that could be applied to the NOTIS environment, but of course much needed to be modified. We interface with our accounting office on a weekly basis in the areas of invoice payment and vendor input and update. Many of the NOTIS reports that we run, are fairly standard, and as a result it is not necessary to discuss many of them in detail. However, many reports are special to Syracuse University in terms of our interface, and it is on those which we intend to concentrate.

The fund code scheme has significant bearing on our interface (Figure 1).

```
GROUP CODE: 0101
OFFICIAL ID-GENERAL REFERENCE

DOCDEL          DOCUMENT DELIVERY
ELECTS          ELECTRONIC INDICES
GENERM          GENERALIA
GENERP
GENERS
REFERM          REFERENCE
REFERP
REFERS

GROUP CODE: 0102
OFFICIAL ID-GENERAL, INFO., AND COMM.

INFORM          INFORMATION SCIENCE
INFORP
INFORS
JOURNM          JOURNALISM
JOURNP
JOURNS
LIBSCM          LIBRARY SCIENCE
LIBSCP
LIBSCS
NEWSPP          NEWSPAPERS
TELEVM          TELEVISION/RADIO
TELEVP
TELEVS

GROUP CODE: 0103
OFFICIAL ID-GENERAL, MEDIA

DATARM          DATA ARCHIVES
DATARS
MEDIAM          MEDIA
```

Figure 1. Fund Code Scheme

We use a total of 229 fund codes and have decided it best to separate them into monographs, serials, and periodicals. We thought that such a distinction would best answer all of our collection development needs. Thus, each fund code, which represents a specific subject area, ends with an m, s, or p. We have set up 15 expense classes, which are assigned to each title at the time of payment (Figure 2).

```
0000      APPROVAL PLAN
0001      RESERVE ROOM
0002      DEPOSIT ACCOUNT
0003      REPLACEMENTS
0004      MUSIC SCORES
0005      VIDEO
0006      AUDIO (RECORDS, COMPACT DISCS, CASSETTES)
0007      SLIDES
0008      MICROFORM
0009      CD-ROM
0010      NEWSPAPERS
0011      SOFTWARE
0012      LOOSELEAF-SERVICES
0013      DOMESTIC
0014      FOREIGN
```

Figure 2. Expense Classes

Thus at the end of this fiscal year we will be able to see how much of our budget, by fund code, has gone to the following areas: approval plan books, reserve room titles, replacements, scores, videos, slides, audio purchases, microform, CD-ROM, newspapers, software, and looseleaf services. The final distinction is made between domestic and foreign. Those are by far the two most common expense classes we use. Basically, we utilize the expense codes in a hierarchical manner, so that any item coming in that does not meet one of the aforementioned categories, is assigned either a domestic or foreign expense class. We truly hope that at the end of this fiscal year, that specific distinction will help us when allocating the serials budget next year (Figure 3).

```
LTSU MORE
                                              NOTIS FUND RECORD          SU07
FUND CODE:  FINEAM              FUND NAME:  Fine Arts-monos.
STATUS:   A        GP:  0201    OFFICIAL ID:  Fine Arts
FY: 91/92  07/01/91  - 06/30/92 BUDGET ID:  165354080-336-20690
     CURRENT PERIOD: 01/18/92
NOTE:


       INITIAL ALLOCATION                    5000.00
       NET ALLOCATION                       32390.00
       ALLOCATION CHANGES (+ or -)
       EXPENDITURES, YEAR TO DATE:          18932.89
                 CURRENT PERIOD:              375.43
           UNEXPENDED BALANCE:              13457.11
       COMMITMENTS, YEAR TO DATE:            9961.65
                 CURRENT PERIOD:             -300.40
           UNCOMMITTED BALANCE:              3495.46
       % OF NET ALLOCATION AVAILABLE:         10.79


   MAX OVERCOMMITMENTS:         -1000.00 COMMIT DATES:  07/01/91  -  06/30/92
   MAX OVEREXPENDITURES:            0.00 EXPEND DATES:  07/01/91  -  06/30/92

_____


   LTSU DONE
                                              NOTIS FUND RECORD          SU07
FUND CODE:  FINEAM              FUND NAME:  Fine Arts-monos.
STATUS:   A        GP:  0201    OFFICIAL ID:  Fine Arts
FY: 91/92  07/01/91  - 06/30/92 BUDGET ID:  165354080-336-20690
NET ALLOCATION            32390.00  EXPENDITURES, YEAR TO DATE:      18932.89
   CLASS      EXPENDITURES   % OF TOTAL EXP.     CURRENT PERIOD:       375.43
   0000         2054.76          10.85
   0001          242.60           1.28
   0005          204.95           1.08
   0009           43.96            .23
   0013        13449.76          71.03
   0014         2936.86          15.51
```

Figure 3. NOTIS Fund Record

We also have a separate fund code scheme for our 26 restricted accounts, which interface through the university's accounting office the same way the regular book budget funds appear (Figure 4).

```
PROCESSING UNIT: SU

GROUP CODE: 1000
OFFICIAL ID- RESTRICTED

ARENTS             GEORGE ARENTS FUND
ASSOCIATE          LIBRARY ASSOCIATES
BAKER              BLANCH M. BAKER
BECK               DWIGHT M. BECK LIBRARY FUND
BIRD               MARIE LITTLE BIRD ENDOWED FUND
BLACKMAN           ADAH C. BLACKMAN ENDOWED LIBRARY FUND
BURLINGHA          GERTRUDE S. BURLINGHAM
CAMP               BLANCHE MINOGUE CAMP
CLASS1912          CLASS OF 1912 LIBRARY FUND
FEINSTONE          SOL FEINSTONE LIBRARY FUND
GERBER             JEROME & ARLENE GERBER ENDOWMENT
GLASER             MARION FRANCES SAMUELS GLASER
HENRY              LELAND BOYD HENRY
HUBERNOBL          HUBER-NOBLE LIBRARY FUND
LOVE               WINIFRED & FRANK LOVE
MACE               MACE LINCOLN LIBRARY FUND
MELCHIOR           WILLIAM-MELCHIOR MEMORIAL FUND
PHIBETA            PHI BETA KAPPA FUND
SEBRING            GLADYS HAMACHECK SEBRING FUND
SMITH              EDWARD A. SMITH MEMORIAL LIBRARY FUND
SNOWCLAN           SNOW CLAN COLLECTION
WALKER             CLIFFORD R. WALKER
WHIFFEN            E. T. WHIFFEN FUND
```

Figure 4. Book Budget Funds

These funds are separated in our biweekly Commitment and Expenditure report. They are given a separate group code, so they sort and subtotal on their own. We have set up numerical group codes that serve to sort subjects by subgroupings (Figure 5).

```
GROUP CODE:              OFFICIAL ID:

0101                     GENERAL REFERENCE
0102                     GENERAL, INFO., AND COMM.
0103                     GENERAL, MEDIA

0201                     FINE ARTS
0202                     LANGUAGE AND LITERATURE
0203                     PHILOSOPHY, RELIGION, PSYCH.
0204                     HISTORY
0205                     SPECIAL COLLECTIONS

0301                     MAXWELL SCHOOL
0302                     AREA STUDIES
0303                     PROFESSIONAL SCHOOLS AND COLLEGES
0304                     INTERDISCIPLINARY SOC. SCI.

0401                     GENERAL SCIENCES
0402                     PHYSICAL SCIENCES
0403                     NATURAL SCIENCES

0501                     MISCELLANEOUS-INT'L PROGRAMS

0502                     MISCELLANEOUS-OFFICE REFERENCE TOOLS

0503                     MISCELLANEOUS-SHIPPING/HANDLING

0504                     MISCELLANEOUS-CONTINGENCY

0505                     MISCELLANEOUS-DOCUMENTS

1000                     RESTRICTED ACCOUNTS
```

Figure 5. Group Code Scheme

For example, within our humanities subjects, we have the following group code scheme: 201 (Fine Arts), 202 (Language and Literature), 203 (Philosophy, Religion, Psychology), 204 (History), and 205 (Special Collections). Each new subject subgrouping begins with a different number as insurance against possible future changes in the fund code structure. These sort separately and in the Commitment and Expenditure report allow us to subtotal by the subject subgroupings which we have established.

There are many unique reports developed by Syracuse University. Every week, an Approved Invoice Report is produced (Figure 6). That report represents all invoice payments for the week that will be interfacing with our accounting office. The report is sorted by processing unit and then by vendor code number. Within each vendor, the items are sorted by NOTIS invoice number. The report cites the date the invoice was input, the NOTIS invoice number, the vendor invoice date, the vendor invoice number, the type of CAPPS account (restricted or blank if regular), the CAPPS amount, or, if coded to not interface, the non-CAPPS amount, and any invoice notation codes that were used. There is an interfaced total for each vendor, as well as a noninterfaced total. The supervisor of the Receiving/Accounting Unit checks this report immediately matching the vendor's paper invoice copy to the citations on the report to identify errors. At that point, we also collect any enclosures that need to be sent to our business office via campus mail.

***FIGURE 6 IS OMITTED FROM THIS FORMATTED DOCUMENT

Our interface is set up so that we have four days to review this report, and correct any errors. The sequence is as follows: We receive the Approved Invoice report every Friday, reflecting our payment activity from the previous Friday through Thursday. The interface program is run on Wednesday nights, so we have from Friday until the next Wednesday to make our corrections.

The interface pulls up the calculated net total payment, not the invoice amount in the NOTIS invoice record. In this way, checks are cut to reflect only the calculated total of ah payments of a particular invoice rather than the amount specified by the vendor. This avoids payment for unwanted items.

The same day we receive our Approved Invoice Report, we also receive an Unapproved Invoice Report (Figure 7). That report is sorted in the same manner as the Approved Invoice Report. It lists the NOTIS invoice number, the vendor invoice number, the vendor name and invoice date, payment amount, NOTIS invoice creation date, and again any notes we might have included in the NOTIS invoice. This list is used to catch any invoice problems that might be lurking a little too long on the desk of one of our staff members. NOTIS-created invoices over one week old are tracked down by the supervisor to find out the reason why the invoice has not been processed. This report is a very good source for detecting potential problems.
We are also able to make changes to unapproved invoices. We are afforded a certain flexibility with them that is not possible with the approved invoices, since those are basically locked in place.

***FIGURE 7 IS OMITTED FROM THIS FORMATTED DOCUMENT

A CAPPS Vendor Interface Listing also exists (Figure 8). This is a wonderful program, which enables us to extract from NOTIS updates to vendor records, new vendor records, and vendor records that have been deactivated, and transfer that information to the business office.
We do, however, need to follow strict guidelines. For example, the NOTIS program allows for more characters per line than the CAPPS program. We need to accommodate CAPPS and keep that line limitation in mind when working with the vendor file. We have arranged our scheduling so that the vendor interface runs first and then the invoice report. In this way, new vendors or any changes to vendor addresses are added to the master listing at the business office prior to the processing of our invoice transactions. Thus nothing "bombs" because the vendor information was missing or incorrect. We have just instituted a new report that is a separate listing of Errors and Warning Messages. This report wil1 pull out all newly created or updated vendor information that will not interface correctly with the CAPPS system. The vendor might have been input with an incorrect state code, or possible wrong line length. It is important that this report is reviewed and corrected prior to any payment attempts if the interface is to work properly.

*** FIGURE 8 IS OMITTED FROM THIS FORMATTED DOCUMENT

The key to the interface is the system of invoice notation codes that has been created (Figure

9). This device is crucial to the success of the interface. Notation codes are placed in the Notes field of the NOTIS invoice. We have two notation codes that are used to bypass the net-30-day system that is in place at the business office. Unless one of these codes is used, the business office will hold off on cutting a check until 30 days after the vendor's invoice date. The two codes are =prepaid and =subs. The prepaid is of course used for all titles that must be prepaid, and for any deposit accounts. The =subs is for all standing orders. For invoices that need enclosures sent with our check to the vendor, we use the code =encl. That way, the business office knows that a remittance copy needs to be mailed with the check to the vendor. We also use =encl if we have made any changes to the vendor invoice, if the vendor needs an account number, if there is no invoice number and we create one, or if we have converted currency and wish to communicate that information to the vendor. We use an =cancel notation to remove an unapproved invoice from future Unapproved Invoice reports. This code is used if we have decided to remove an invoice prior to final approval. If our supervisor notices an error, we cancel the invoice to prohibit it from appearing anywhere else in the future.

```
=PREPAID          (for prepaid titles)

=ENCL             (for invoices needing enclosures)

=NOCHECK          (do not cut check)

=SUBS             (for item on subscription)

=CANCEL           (to remove unapproved invoice from future reports)

=LATESTOP         (use if error detected prior to CAPPS interface)


Separate multiple notation codes with semi-colons and no spaces.
       =PREPAID;=ENCL

=PREPAID and =SUBS will bypass net 30 day procedures
```

Figure 9. Summit Invoice Notation Codes

One very important code is our =nocheck. This is the code we use to credit back or alter the NOTIS fund records when we do not want to interface with the business office. NO check will be cut; in essence, this code is used for reimbursement purposes only. For example, if we approve payment of an invoice, and our business office then reports a problem, e.g., a duplicate payment, the CAPPS program blocks any interface. The program will identify duplicate payments by matching a vendor number with an already used vendor invoice number. However, in this scenario, we have already charged a specific fund code a certain dollar amount when we created and approved the invoice in NOTIS. To credit that fund, we create a new NOTIS invoice record with a negative amount. We then directly input the fund code we are trying to credit on the invoice. After approval, and a nocheck notation, we have credited our fund without interfacing with CAPPS.

There is one final notation code that we find extremely handy. That is called the =latestop code. This is used if we discover that an approved invoice is in error and needs to be stopped.

It is basically a mechanism for short-circuiting an invoice after approval but before the first half of the interface has been run and the Approved Invoice Report has been produced. Our programmer refers to this as our "last minute deletion capability." If we notice that an invoice is approved and SHOULD NOT be processed by the CAPPS interface, we are able to call our programmer and ask that a particular invoice be included in the latestop table. Once the latestop is initiated, it removes the invoice from the interface. The invoice still appears on the next weekly Approved Invoice Report, but shows a notation of latestop in the final column. However, the total will not be transmitted through CAPPS. In these instances, one must remember to then use an =nocheck notation code in order to credit the NOTIS fund code in our local system.

We have been asked to include in our presentation a discussion of the "ideal" interface. In thinking about the ideal, we focused on problems we have with the current setup, especially the inherent restrictions. One of the biggest challenges we face is keeping the two vendor files consistent. There are two issues here: consistency of data and timing of the batch programs.

Data consistency is imperative. Both vendor files should have the same data for each vendor. We encounter two obstacles to achieving data consistency. First, the same data are present in both fries, but they are recorded differently. In our situation, both NOTIS and CAPPS have vendor addresses, but they have different format requirements (Figure 10). In NOTIS, the payto address consists of five lines, each of which is 39 characters long. CAPPS is more complex. The fast three lines of the address are 31 characters each, the fourth line is 25 characters, and the fifth line consists of separate fields for city, state, and zip code.

```
NOTIS format:

        1st line: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
        2nd line: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
        3rd line: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
        4th line: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
        5th line: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX


CAPPS format:

        1st line: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
        2nd line: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
        3rd line: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
        4th line: XXXXXXXXXXXXXXXXXXXXXXXXX
        5th line: XXXXXXXXXXXXXXX  XX   XXXXX
```

Figure 10. Address Fields

The city field is 15 characters, the state field is 2 characters with no punctuation allowed, and the zip code field is 6 characters (with alphabetics allowed). There is an immediate and obvious problem when transferring an address from NOTIS to CAPPS: the lengths of lines do not match. Since we are transferring information from NOTIS, which is less restrictive, to CAPPS, which is more restrictive, there is the danger of losing data from the NOTIS address when it is loaded into CAPPS. In building the interface, we had to include warning messages whenever CAPPS truncated an address field. We try to be aware of the length that CAPPS will allow when entering

addresses in NOTIS, but believe a warning message is necessary to ensure a correct address in CAPPS.

The fifth line of the address presents special problems for us. The CAPPS vendor address is designed to accommodate U.S. addresses with city, state, zip code information. At times it is difficult to make foreign addresses conform to those specifications. We have tried to limit the 5th line in foreign addresses to the name of the country. We do not want any data in the state and zip code fields for foreign addresses.

The second obstacle to achieving data consistency is that different data elements are required by the two systems. The best example in our system is the Federal Employee Identification number (FEI). NOTIS does not support the FE1 number, i.e., no specific field is reserved for the FE1 number. CAPPS, on the other hand, requires it. Since we establish our vendors in NOTIS and pass that information on to CAPPS through the interface, we had to develop a mechanism for storing the FE1 number in NOTIS and identifying it in such a way that the interface could recognize it and extract it for transfer to CAPPS. We decided to use a vendor note field with a label FEI. The note would read: FEI#91-1111111;. The # symbol is not necessary and spaces may be used after FEI, but not within the number itself. The program assumes that the FEI# begins with the first numeric character encountered within 5 spaces of the "FEY label. Other intervening characters are allowed so long as they are not numeric. The semicolon is used to separate different notes in the field, so other text may precede or follow the FE1 statement.

The ideal solution to the problem of consistency of data is to develop a single vendor file used by both the library system and the university system. This is the same issue that libraries have faced since the beginning of automation-how to keep separate files synchronized, whether it be circulation and public catalog, acquisitions and public catalog, or library vendors and university vendors. Unfortunately, we see no way of integrating our library and university vendor files into one file. We are left with the task of building an interface that takes the differences in the files into account as much as possible. The system of messages we have developed is crucial to keeping the data content consistent. Note, however, the cost of doing this. We have limited ourselves to the conventions of the more restrictive system. In essence, we have adopted the CAPPS limitations for vendor addresses for the NOTIS system. While in this case it is workable, in other cases the loss may be more significant.

The second major concern with the vendor files is the timing of the batch programs. Our interface program is a batch job run weekly. We need to make sure the vendor additions and changes are entered before the invoices are passed through. One solution would be to have the interface active constantly so that changes/additions in the NOTIS vendor file would result immediately in changes/additions in the CAPPS file. Again this reflects the general concern with batch programs and a preference for online updating. While this approach might be preferable, it is not realistic for us. The payback of developing such an interface is not great enough to warrant the time and cost of developing it.

The final issue we want to address is fund management. Within NOTIS we have 229 fund accounts to track allocations, commitments, and expenditures. Within CAPPS, we track only the total expenditures for the materials acquisition allocation, separating out only the restricted

accounts. When we implemented NOTIS we discussed the possibility of including more detailed fund accounting in CAPPS. There are some mechanisms available to us in CAPPS for providing more detailed fund accounting. However, the breakdowns CAPPS could provide would correspond at best to a summary of the broad groupings of fund accounts from NOTIS. Having worked with a system (prior to NOTIS) where we had three different accountings of our expenditures, all providing different totals, we decided it was virtually impossible to make NOTIS and CAPPS fund accounting agree. We could not afford the time and energy such a project would involve. Since CAPPS cannot provide commitment analysis, but only expenditures, we decided to take the NOTIS fund accounting as authoritative, although for the university, the CAPPS system is authoritative. So we are left with reconciling two systems of accounting. This is an improvement over our previous arrangement, which had three systems, but not as satisfactory as a single accounting system authoritative for both the Library and the University.

In conclusion, the interface program in place at Syracuse is an effective means of transmitting vendor information and invoices for payment to the University accounting office. It results in substantial savings of staff time for both the Library and University Accounting, as well as significantly fewer problems than with a manual system in reconciling our accounts with the accounting office. This program is testimony to the cooperation that exists among the Library, Computing Services, and University Accounting. Particular credit must be given to our systems analysts in Computing Services who have worked so hard to make this interface work effectively.