

Silverrun BPM Tutorial
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For classroom use only

1. Introduction

Silverrun (www.silverrun.com) is a Computer Aided Software Engineering (CASE) product developed and distributed by Grandite, Inc., Quebec Canada (www.grandite.com). It provides a set of integrated tools to support Systems Analysis and Design. The Silverrun BPM tool enables the creation and analysis of Data Flow Diagrams. The Silverrun RDM tool enables the creation and analysis of Data Models. It can also generate the SQL commands necessary to implement the data model in a Relational database management system. This tutorial addresses a portion of the capabilities of Silverrun BPM. A subsequent tutorial discusses the capabilities of the data modeling tool Silverrun RDM.

Install the demonstration version of Silverrun BPM (SR-BPM275DEMO.exe). The demonstration version runs in restricted mode, which limits DFDs to 24 processes, 15 data stores, and 15 external entities. A message to that effect will be displayed when you open it. It does not disallow the *entry* of more extensive DFDs; however, if these limits are exceeded it will not *save* or *print* the model. If this occurs you can use Alt-PrtSc to capture an image of your DFD, which then can be pasted into a Word document. You must then reduce the size of the model before you can save it. Silverrun BPM models are saved with a file extension of .bpm.

Silverrun BPM uses four basic concepts as the basic building blocks for developing business process models: Processes, External Entities, Stores, and Flows. Each is described below. Note that Processes in a BPM model can be performed by people or by software in the final system implementation. Part of the task of information system development is to determine the appropriate *scope* of the computer-based component, which defines the role that the software will play.

Process: A process is an activity or decision to be carried out by the organization. A process is expressed in terms of actions that are accomplished by an organization's resources. Examples: order entry, invoicing, shipping, assigning personnel to a project.

External Entity: External entities are objects which are outside the boundary of the business unit being modeled but which interact with it. An external entity is a source and/or a destination of information of the system being described. An external entity is usually a person or an organizational entity. Examples: management, client, accounting, IRS.

Store: A store represents a collection of information which is created, used and modified by the system that is under study. Examples: invoices, personnel records, inventory files.

Flow: A flow represents information or goods circulating between processes, stores, and external entities. Examples: order information, account information.

Silverrun includes two additional concepts, Qualifier and Resource, which can be used, respectively, to describe the "how" and the "who" of business processes. A qualifier, for example, could be used to specify that a client typically records orders by phone, fax or mail. Similarly, a resource could be used to specify that a process is performed by a specific person or job title or by a specific computer system application. They will not be used in this tutorial.

2. Common Actions

Silverrun opens as illustrated in Figure 1. The default notation is that developed by Gane and Sarson. It can be easily changed to the Yourdon-DeMarco notation that we are using. To do so, first choose Options... from the Tools menu. Choose the Notation tab from the displayed pop-up. Then choose Yourdon-DeMarco from the Standard Notation list and press the OK button. This will need to be done each time you begin a new model. Note that the notation can be changed even after a mode has been entered. Note that the Context box disappears. The blank screen represents the context of the model.

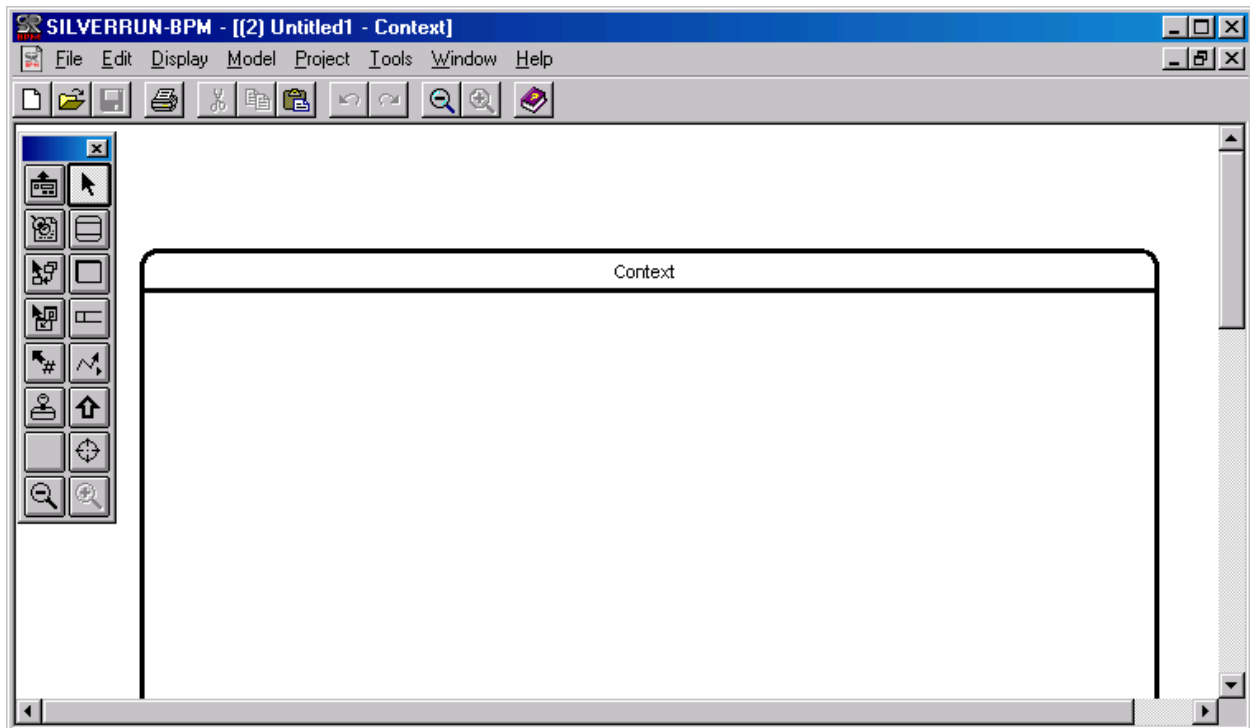


Figure 1. The Silverrun BPM Screen

The Toolbar displays icons representing business process objects (process, external entity, data store, and data flow) and icons representing tools for constructing and documenting the model. A "mouse-over" will display the purpose of an icon (icons for process objects are directly below the pointer icon). Double clicking an icon makes it the default. Single clicking it allows it to be used once. To add multiple process objects, for example, double click it to make it the default and then

click inside the Context box to place a process. To de-select the process icon double click the pointer icon (or any other icon you wish to make the default). To delete an object added to the mode click on it to select it and then press the delete (Del) key. You can re-position any graphic object by pointing to the object and dragging it to the desired position (all of its connections will move with it). You can undo the last action by choosing Undo from the Edit menu (you can also redo the last action undone). The Esc (escape) key will typically cancel the current operation and return you to the prior screen. To save a model press the Save icon in the top menu bar or choose Save from the File menu. Once saved you can re-open a model by double clicking it in Windows My Computer or you can open Silverrun and use the Open icon. You should create a folder on your computer to save the models developed in this class.

3. Accuflow Cash Disbursements System: Context Diagram

The Accuflow Cash Disbursements System is responsible for paying vendor invoices (part of the Expenditure Cycle). The context diagram is illustrated in Figure 2. Enter it as follows.

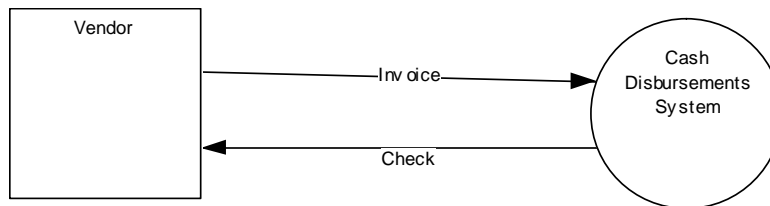


Figure 2. The Accuflow Cash Disbursements System: Context Diagram

1. Open Silverrun BPM.
2. A blank screen will be displayed with the title Context [Project1 Model_1.01].
3. If you have not already done so set the notation to Yourdon-DeMarco as described above.
4. Add a process by selecting the process icon (circle) and then clicking in the drawing space. Name it Cash Disbursements System by double clicking the circle in the drawing space and entering that text in the Name box in the Process description pop-up box. Press the ONK button to close the pop-up box.
5. Similarly add an external entity by selecting the external entity icon (square box) and then clicking in the drawing space. Name it Vendor by double clicking the box in the drawing space, changing the External Entity name from E-1 to Vendor, and pressing the OK button. Note that the box can be resized by dragging a corner. Fonts can be changed using the Fonts tab in the Options box (select Options... from the Tools menu to open the Options box).
6. Add a data flow from Vendor into the Cash Disbursements System by selecting the angular flow icon and then clicking first inside the Vendor external entity and then clicking inside the Cash Disbursements System process. Name it Invoice by double clicking the flow and entering that text in the Name box in the Flow description pop-up box. Press the ONK button to close the pop-up box.
7. Similarly add a second data flow from the Cash Disbursements System into Vendor. Name it Check (Accuflow pays vendor invoices by check).
8. This completes the Context level DFD. Save it by pressing the Save icon (or by choosing

Save from the File menu). Name the file YourName_AccuFlow.

4. Accuflow Cash Disbursements System: Level 0 Diagram

The Accuflow level 0 diagram for cash disbursements processing is illustrated in Figure 3. Enter it as follows.

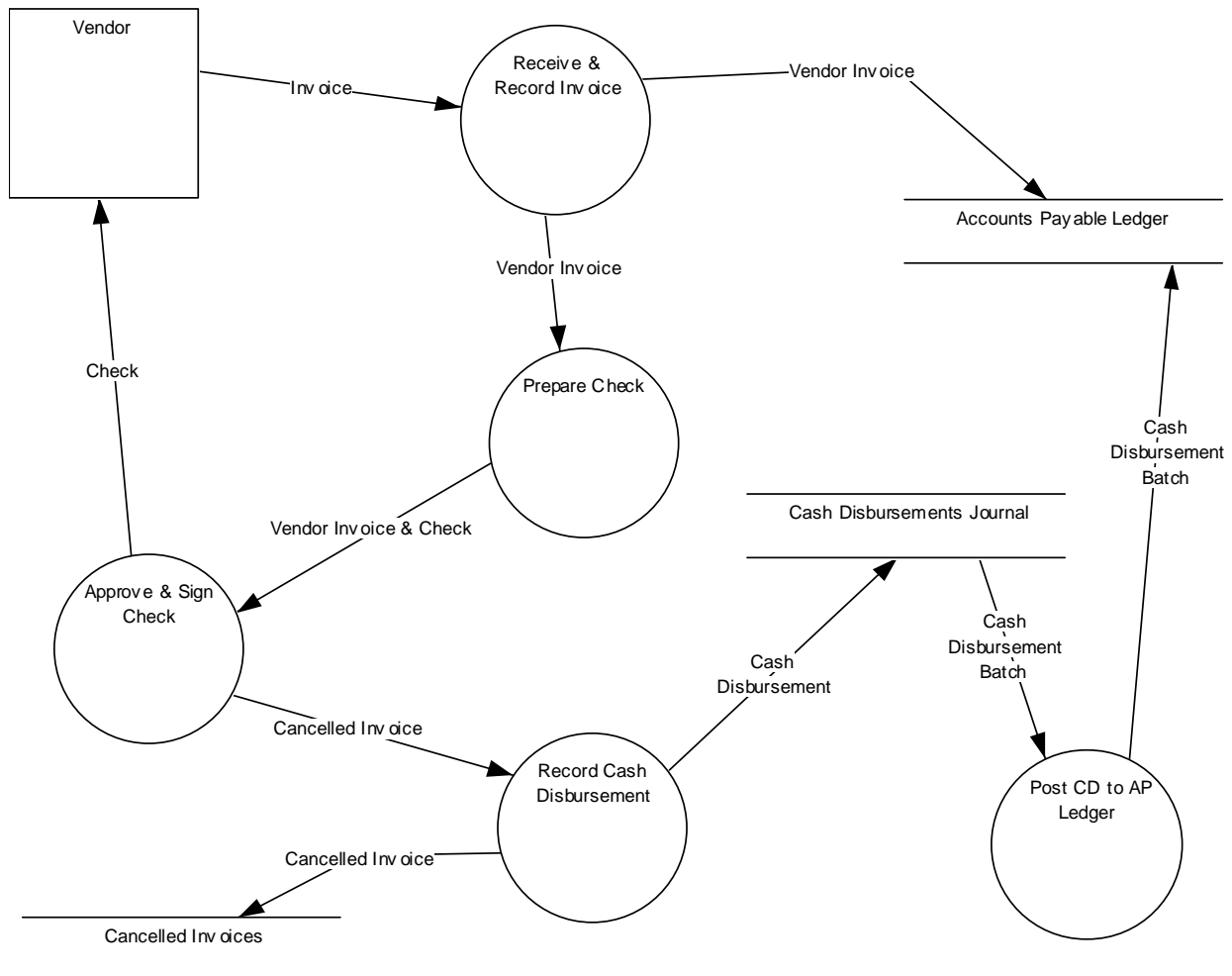


Figure 3. The Accuflow Cash Disbursements System: Level 0 Diagram

1. Select the process explosion icon (two icons below the angular flow icon). Then click inside the Cash Disbursements System process. A new drawing area will appear showing the Vendor external entity and the two data flows. These are the interface between the context and level 0 diagrams.
2. Add five processes as illustrated in Figure 3 by double clicking the process icon and then clicking five times in the drawing area. Double click the pointer icon to make it the default. Name the processes as illustrated in Figure 3.
3. Connect the data flow named Invoice to the process Receive & Record Invoice by dragging the arrowhead at the end of that data flow into that process (you may need to reposition the

label "Invoice" to see the arrowhead; then click the data flow to display squares at each end of the data flow).

4. Similarly connect the data flow named Check from the process Approve & Sign Check by dragging the end without the arrowhead into that process.
5. Create the three data stores and name them as in Figure 3.
6. Create and name the remaining 8 data flows.
7. Press the Parent Diagram icon to return to the Context diagram. The process Cash Disbursements System is followed by an asterisk (*) indicating that it has been exploded. To return to the level 0 diagram select the Process Explosion icon and then click inside the Cash Disbursements System process.
8. Save the updated file by pressing the Save icon.

5. Accuflow Cash Disbursements System: Level 1 Diagram

Processes within a set of DFDs are exploded until the processing rules can be specified using structured English, program flowcharts, or decision trees. These rules are implemented either in software for automated processes or in policies and procedures for manual processes. In either case adequate audit trails and retention of data must be insured. The Accuflow level 1 diagram for the Approve & Sign Check process in the level 0 diagram is illustrated in Figure 4. Enter it as follows.

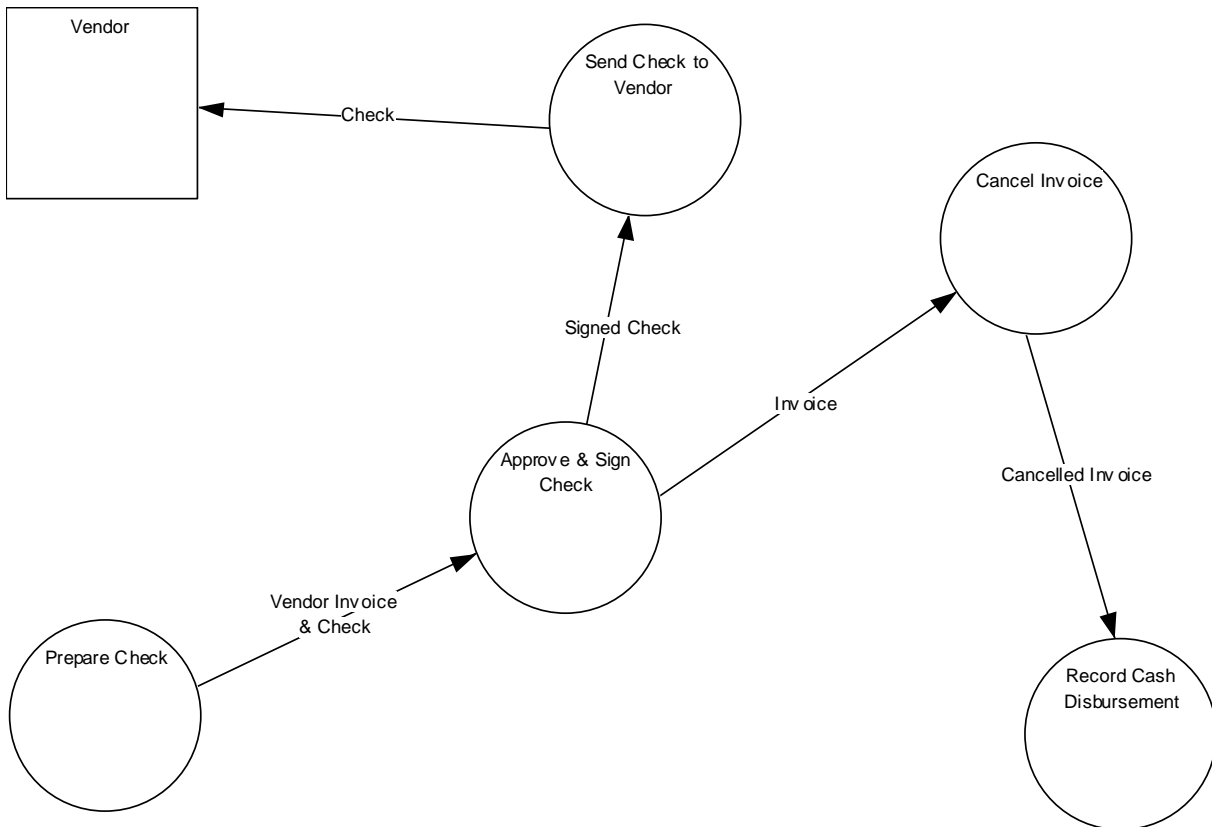


Figure 3. The Accuflow Cash Disbursements System: Level 0 Diagram

1. Select the process explosion icon (two icons below the angular flow icon). Then click inside the Approve & Sign Check process. A new drawing area will appear showing the Vendor external entity and processes, Record Cash Disbursement and Prepare Check, with which the Approve & Sign Check process interacts. These are the interface between the level 0 diagram and this level 1 diagram.
2. Add and name the three additional processes illustrated in Figure 4.
3. Connect the interface data flows as illustrated in Figure 4.
4. Add and name the additional two data flows as illustrated in Figure 4.
5. Press the Parent Diagram icon twice to return to the Context diagram. Print and Save your diagrams. Be sure to select the "Include descendants when selecting" checkbox so all levels in the DFD will be printed. Note you may need to select a default printer before you will be able to print the diagram.

6. System Verification

The data items that constitute each data flow and each data store can be specified. Silverrun has this capability but it is beyond the scope of the tutorial. After the processing rules for all processes have been specified, the data items are used to insure the completeness and availability of the data needed to accomplish each process. The process model should be verified against the data model produced for the application. All data elements in data flows and data stores must correspond to attributes and relationships in the data model. Similarly all attributes and relationships in the data model must have a source data flow, a process that captures it and a data store that permanently maintains it.