

■ White Paper
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Process control in
ICS manager *nG*

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Process control in ICS manager nG

Introduction

Within the framework of the global Spectrum Management, ATDI offers via its software ICS manager nG, an automatic way to manage the various processes controls intervening in this global Spectrum Management.

Before starting to present to you how to manage the process controls in ICS manager nG, man will define this term of process control:

A process control allows the management of a set of processes, defined by the Administration, and constituting a more general process, having the aim of the following up, the validation and the respect of the various stages of the life of a given entity (license, felt sorry for...).

A process control thus will be characterized by a control of the various **states** which an entity during a process can take. For each state, various **actions** can be considered. An action can in particular make it possible to pass in a following state and thus to specify a possible *transition* between two states. In addition, each action being able to be accomplished only by a certain group given people (legal department, technical team...), it also defines the people who participate to the cycle of life of the entity.

Thus, certain process controls can be rather complex because they need various people of various departments and are spread out in time.

Regarding this definition, ICS manager nG offers various tables and processes which will make it possible the Administration to define step by step the process control adapted to the work that it must carry out.

This document describes in a brief way, how to create and manage a process control in ICS manager nG through these various tables.

Definition of the Taskforces members

The management of the process controls in ICS manager nG begins with the creation of the taskforces members.

The taskforces members define the various databases' users who will participate to the process, according to their field of action.

The customer can define taskforces as he wants; for example:

- Law enforcement taskforce (Alfredo)
- Engineering taskforce (Bill, Charlie)
- Administrative taskforce (Eva, Karl, Alfredo)

Database user	Taskforce.Shor...	Taskforce.Full name
BILL	Eng	Engineering department
CHARLIE	Eng	Engineering department
ALFREDO	Law	Law enforcement department
ALFREDO	Adm	Administrative department
EVA	Adm	Administrative department
KARL	Adm	Administrative department

Figure 1: Taskforces definition

The 'Taskforces' query lists all taskforces entered by the customer;

The 'Taskforce users' query lists all relations between database users and taskforces.

Only the users designated in these taskforces will be able to carry out the tasks associated with the various actions.

Process controls definition

In ICS manager nG, process controls are configurable by users.

Process controls can be configured for various tables: licenses, microwaves, complaints...

The definition of the process control must make it possible to the administrator to make sure that the process is well applied by the various members of the taskforces.

For that, two types of process controls are available in ICS manager nG:

- Implementation as a diagram of transitions – no programming required
- Implementation as a set of programs – much more powerful

The main difference between these two types of implementation is the treatment of the transitions between the states.



Implementation as a diagram of transitions

For this implementation the user does not need to create of program, all the process of transition will be defined manually. Initially, the user will define all the states that the recording associated with a chosen table will be able to take during the process. Then, the user will describe the various possible transitions between each state, and the tasks which must be carried out in order to pass to a following state.

State	Init?	Description
NDE	Y	Data entry (creation)
NFS	Y	Initial feasibility study
Naf	N	Waiting for formal application_evaluation fee
NBC	N	Spectrum fee and B.C.
Nlf	N	Waiting licence fee
Nxx	N	Abandoned
Neq	N	Equipment validation
Cv	N	Valid licence
NCoo	N	Coordination is going on
MDE	N	Data entry (Modification)
MFS	N	Modification feasibility study

Figure 2: States definition for a license recording

The workflow transitions complete the definition of the control process. All the possible transitions are described.

Implementation as a set of programs

In this case, the diagram states/transitions was replaced by LISP code, which makes this implementation more powerful. Thus, for this process control, the user defines a whole of programs which will describe the various actions and tasks to be carried out as well as the possible transitions. This whole of programs is gathered in a main program and each program can be activated and launched whenever during the process. The process control is, in this specific case, a program writes with LISP codes.

```

)))-
lisp (redefun LICENCE_RecordHandler (rid cmd . pl)
  (let ( (prn lic licid )
        (cond
          ((equal cmd "GET_RECMENU")
           (MenuItem "Start new modification" "DENT" "ModApp")
            (MenuItem "Received renewal application" "DENT" "RenewApp")
            (when (or (DataOwnerConnected) (IsConnectedUserInTaskforce "ADMI"))
              (MenuItem "(Admin) Set status..." "ADMI" "ChStat" 1))
            (MenuItem "Print licence (Debug)" ".*" "PrLicDbg" 1)
            (MenuItem "Compute fee (Debug)" ".*" "CalcFeeDbg" 1)
            (MenuItem "Couscou..." "Sec" "Couscou" 1)
          )
          ((equal cmd "OR_NEW_ITEM") (LicOnNewItem rid pl)) :pl: (objtb string)
          ((equal cmd "PrLicDbg") (Lic_PrLic rid))
          ((equal cmd "CalcFeeDbg") (LicenceAnnFeeCalc rid))
          ((equal cmd "ModApp") (LIC_ModApp rid))
          ((equal cmd "RenewApp") (LIC_RenewApp rid))
          ((equal cmd "ChStat") (LIC_ChStat))
          ((equal cmd "Couscou") (recset rid "CUST_TXT1" "couscou" "CUST_NBR1 (add (recid rid) 1)) )
        )
    ))
  )

```

Figure 3: Definition of a process control as a set of programs

Thus, in ICS manager nG, the two types of process controls suggested, will define the various states which the recordings of a table can take.

The state of the record may change as the process goes on.

Some states indicate that the regulator must perform a task; in that case it is possible to select the taskforce who is in charge of this task (only database users' member of the taskforce can begin and complete the task). If no taskforce is selected then anybody may accomplish the task.

User interface

Before implementing his process control, the user will choose which tables (licenses, invoices, complaints...) will have to follow this process. When a new record is created, the user can select in a list one of the possible initial states defined in the implementation of the Process control.

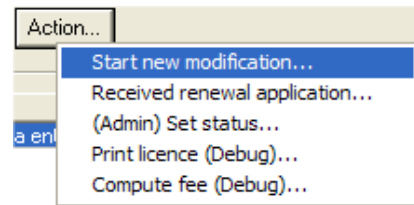


Figure 4: Initial states

When the task associated to the initial state was carried out, the user can then choose in a list, the state following to continue the process. The list of possible states depends on the transitions which were defined in the implementation of the process control.

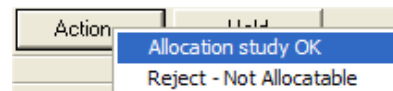


Figure 5: possible transitions

When there are no more possible transitions, man considers that the process is finished. With the end of the process, the user has access to a history of the actions carried out

Event date	Event author	Event type	Text parameter
14 Dec 2004 10:35:25	ADMIN	Application rejected	Reason EF /
14 Dec 2004 10:34:59	ADMIN	Generated invoice for evaluation fee	Invoice 100.00 \$ Ref ./EvF ID=1
14 Dec 2004 10:34:54	ADMIN	Formal application received	Reference * Date: 14 Dec 2004
14 Dec 2004 10:34:48	ADMIN	Formal application requested	Reference /FAR/ Date: 14 Dec 2004
14 Dec 2004 10:34:39	ADMIN	Assignment OK	
14 Dec 2004 10:34:36	ADMIN	Allocation OK	
14 Dec 2004 10:33:11	ADMIN	Licensability OK	
14 Dec 2004 10:33:06	ADMIN	Data entry completed	
14 Dec 2004 10:31:43	ADMIN	Application for new licence	Ref. / 14 Dec 2004

Figure 6: Process' history

For each record (license, microwave...) the table of history makes it possible to memorize the events.



In fact the process writes messages in this table of history when a task is finished, so the process can create a recording in the historical table indicating the transition from state, at which date and by whom.

Management of the statistics tasks

Within the framework of the management of the process controls, ICS manager nG makes it possible to the user to carry out statistics (by operator, type of process, bandages...) on:

- Current processes
- Done processes
- Current tasks
- Done tasks

Thus, for example, the user can be derived from the Current tasks:

- Delay for holding: how long the task waited before somebody started to process it? (=Date holding – Date creation)
- Delay for realization (= Date completion – Date holding)
- Delay for processing (= Completion date – Creation date)

The user can also gather statistics from this table like:

- Number of tasks to be done by each taskforce
- The average delay between task creation and task completion
- The average realization time of some task
- Number of tasks done during a year...

Management of uncompleted tasks

The user has access to a predefined query on license tasks so that he can see all the tasks to complete and easily select one from the list.

ID	Proc. type	System	Band	Operator	* Object table	Object ID	Taskforce	Holder
66	LICNEW			ORANGE	Licenses	12	ENGI	
118	LICNEW			User7	Licenses	13	ENGI	
133	LICNEW			ORANGE	Licenses	14	ENGI	
174	LICNEW			ORANGE	Licenses	15	ENGI	
180	LICNEW			TDF	Licenses	16	ENGI	

Figure 7: Uncompleted tasks

The query retrieves all tasks uncompleted (Completion date is null), eligible for the taskforces in which the user is involved.

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