

# Decision Management Evolution: An Unobstructed View of the Future



Michael Koscielny, CPCU CIC

Assistant Vice President  
**American Modern  
Insurance Group**

# Introducing Michael Koscielny

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- ▶ Assistant Vice President of Property Underwriting and Product Support at American Modern Insurance Group.
  - ▶ Prior to American Modern, spent time with Auto Club Group, helping the organization expand its auto and home insurance lines into eight neighboring states.
  - ▶ During this business expansion, led a team that was responsible to modernize and integrate a myriad of legacy mainframe systems and paper-dependent underwriting processes.
- ▶ Previous roles in the insurance industry working with business rules management software include positions over the last 28 years at leading insurance companies Kemper Insurance, Safeco and Auto Club Group.
- ▶ Maintains a number of professional insurance certifications, which include Chartered Property and Casualty Underwriter (CPCU) and Certified Insurance Counselor (CIC).

## Looking Back to Set a Clearer View of the Future....

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- ▶ **Background Information**
- ▶ **Rules Development Strategy**
- ▶ **Rules Creation**
- ▶ **Developed Functionality**
- ▶ **Rules Maintenance**
- ▶ **Benefits Realized**
- ▶ **Future Functionality**
- ▶ **Enterprise-wide Decision Management**



## About Auto Club Group (AAA)

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- ▶ Auto Club Group is Michigan's largest writer of auto insurance for more than 75 years.
- ▶ Auto Club Group wanted to expanded outside of its home state into neighboring markets including; Illinois, Indiana, Wisconsin, Minnesota, Iowa, Nebraska, North Dakota and Ohio.
- ▶ The group is the combination of motor clubs that include; AAA Michigan, Chicago Motor Club, AAA Wisconsin, AAA Minnesota/Iowa, AAA Nebraska/North Dakota and insurance alliances with Hoosier Motor Club and AAA Minneapolis.
- ▶ Auto Club Group is a "A" rated insurer as determined by A.M. Best with premiums in excess of \$1.5 Billion.

# The AAA Sales & Service Portal project identified the need for a third-party rules engine...

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## Background:

- ▶ To ***effectively support market expansion and continued profitability***, the Sales & Service initiative identified the need for an automated underwriting solution to accompany the portal release of quote and new business functionality
  - ▶ ***Reduce manual underwriting*** review from 100% to 15% of new business applications and 15% of renewal policies
  - ▶ Automated underwriting would result in ***improved loss ratio, expense ratio, cycle time, and quality across the entire book***
- ▶ In order to perform automated underwriting, the project further defined the need for a rules-based solution wherein current underwriting rules (tiering, referral, knock-out) could reside and be fired against policies ***consistently***
- ▶ The team determined that to provide ***flexibility and enhanced rule capabilities***, a third-party rules engine would be a more flexible and ***reusable solution*** than developing a homegrown rules solution
- ▶ That third party rules application was chosen and is currently implemented as the decision engine for the Sales & Service Portal

# Rules development strategy

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Principles contributing to the design of the rules structure management process

## ▶ **Rule Alignment**

- ▶ Rules are *aligned by states* and line of business
- ▶ Affords rule implementation on an individual state basis and *ties rules changes to scheduled rate changes* (e.g. with state filings)
- ▶ *Maintenance and testing* can be done on a state by state basis

## ▶ **Reusability**

- ▶ Rule templates and rule flows *can be copied* between states
- ▶ Rules entry *must be done on an individual state basis*

## ▶ **Task / Rule Set**

- ▶ Templates are *tied specifically to “tasks”* or “rule sets” and align to logic behind the scenes (e.g. tiering vs. knock-out (ineligible) vs. referral logic)
- ▶ *Multiple templates might exist* for a single task depending on the Underwriting function

# Rules development strategy

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## ▶ Rule Development

- ▶ Only rules that *result in action* (e.g. add 1 tiering point) will be entered into the tool chosen
- ▶ Rules within a task/rule set should be *mutually exclusive* to avoid double counting
- ▶ The conditions stated in the template have an *implicit “AND”* within them; meaning in order for a rule to be hit, all conditions must be true
- ▶ Best practice is to *avoid “nested IF”* statements within rule development as to afford more flexibility in future rule development and maintenance

## ▶ Rule Deployment

- ▶ All rule changes, regardless of complexity, should undergo the same *consistent rigor*
- ▶ *Testing is the key* – including regression testing

## Rules creation

An example of a rule scenario is illustrated below. All scenarios that are possible should be documented; only those that result in an “action” will be input into rules engine. *Rule mining is a significant task and should not be taken lightly.*

### Rule Scenarios – Claims/Loss Rules

At Fault Scenarios					Not at Fault Scenarios		
Fault	BI/Fatality	Amount	Occurrence	3	Fault	Moving	Points
>=50%	Y	<\$750	1	3	<50%	Y	1
>=50%	Y	<\$750	>1	4	<50%	Y	1
>=50%	N	>=\$750	1	3	<50%	N	0
>=50%	N	>=\$750	>1	4	<50%	N	0
>=50%	Y	>=\$750	1	3			
>=50%	Y	>=\$750	>1	4			
>=50%	N	<\$750	1	2			
>=50%	N	<\$750	1	0			
>=50%	N	<\$750	>1	0			

# Rules creation

An example of a Rule Template is illustrated below. Based on the Rule Scenarios, it can be determined what fields will be necessary in the rules engine template in order to create all rule scenarios

## Rule Template – Claims/Loss Rules

### At Fault Template

Template Field	Template Selection Field	Template Input Field	Consideration Points
Rule Name:		Loss Type (e.g. At Fault Loss)	
Rule Description:		Loss Type Description (e.g. Major - BI / Fatality)	Need to include occurrence if applicable
Fault (operands):		>= 50%	Determines AF, NAF. For AF rules, will always be >= 50%
PD Amount (operands):		< \$750 or >=\$750	
Bodily Injury:	Yes, No		
Effective Date:		Date this rule goes into effect	
Expiration Date:		Date this rule gets expired	
Occurrence:	1, >1		
Point Assignment:	1, 2, 3, 4, 5, 6		Need to account for occurrence
Length Counted:		Enter # of years this loss is counted	

### Not At Fault Template

Template Field	Template Selection Field	Template Input Field	Consideration Points
Rule Name:		Loss Type (e.g. Not at Fault Loss)	
Rule Description:		Loss Type Description (e.g. Moving )	
Fault (operands):		< 50%	Determines AF, NAF. For NAF rules, will always be < 50%
Moving:	Yes, No, N/A		
Effective Date:		Date this rule goes into effect	
Expiration Date:		Date this rule gets expired	
Occurrence:	1, >1		
Point Assignment:	1, 2, 3, 4, 5, 6,		
Length Counted:		Enter # of years this loss is counted	

# Rules creation

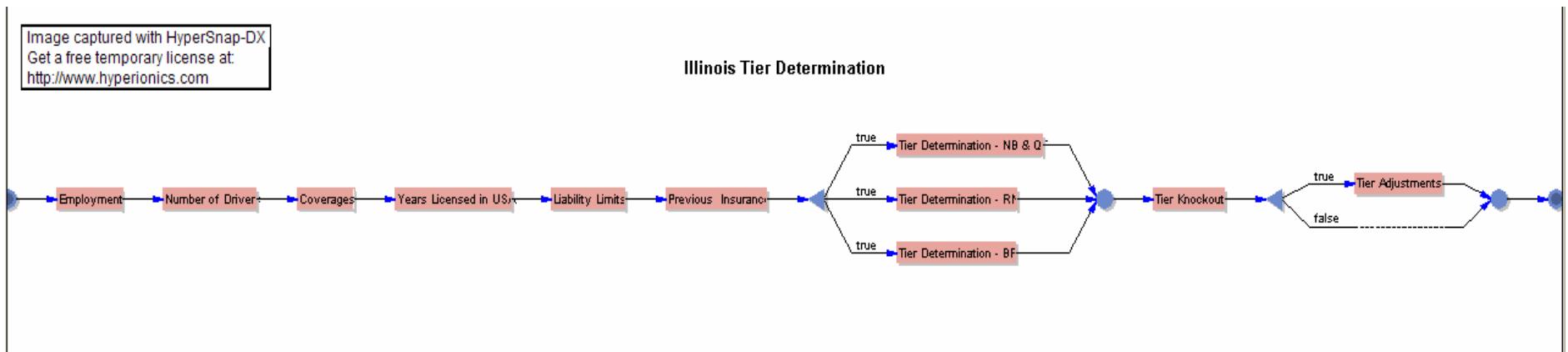
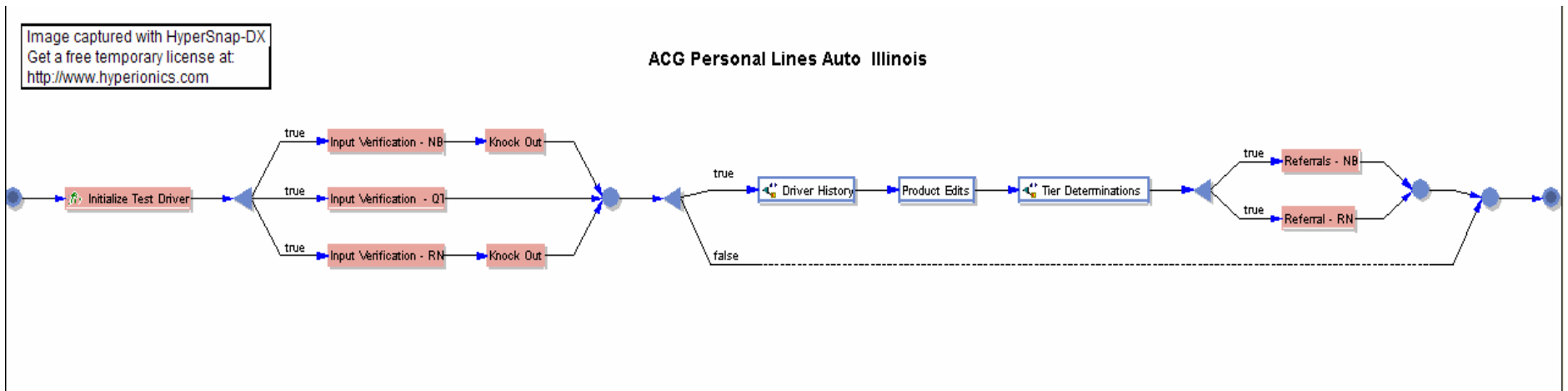
- ▶ When rule scenarios utilize different fields, separate templates should be created
- ▶ Define whether the field should be available via drop-down in the second column
- ▶ If drop-downs are not necessary, identify whether operands are needed and what type of data will be input (e.g. % or \$)

## Rule Template – Claims/Loss Rules

<b>At Fault Template</b>			
Template Field	Template Selection Field	Template Input Field	Consideration Points
Rule Name:		Loss Type (e.g. At Fault Loss)	
Rule Description:		Loss Type Description (e.g. Major - BI / Fatality)	Need to include occurrence if applicable
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Expiration Date:		Date this rule gets expired	
Occurrence:	1, >1		
Point Assignment:	1, 2, 3, 4, 5, 6		Need to account for occurrence
Length Counted:		Enter # of years this loss is counted	
<b>Not At Fault Template</b>			
Template Field	Template Selection Field	Template Input Field	Consideration Points
Rule Name:		Loss Type (e.g. Not at Fault Loss)	
Rule Description:		Loss Type Description (e.g. Moving )	
Fault (operands):		< 50%	Determines AF, NAF. For NAF rules, will always be < 50%
Moving:	Yes, No, N/A		
Effective Date:		Date this rule goes into effect	
Expiration Date:		Date this rule gets expired	
Occurrence:	1, >1		
Point Assignment:	1, 2, 3, 4, 5, 6,		
Length Counted:		Enter # of years this loss is counted	

# Rule flow development

Rule flows were analyzed and are illustrated below



## Developed rule functionality

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### Sales & Service Portal Releases for Auto & Home Quote / New Business with Rules Engine Functionality

#### ▶ Tier Assignment

- ▶ *Automated calculation of tier* and *assignment by driver* is handled in the Sales and Service Portal for both Quote and New Business

#### ▶ Merit Point Determination

- ▶ Rules engine provides *calculation of merit points* as part of tier assignment and passes that value to the rate engine guaranteeing *consistent application of driving record*

#### ▶ Knockout Rules (ineligible)

- ▶ *Knockout rules for multiple major violations and total tier points* in excess of accepted standard in place for quote and new business
- ▶ Requests for *exception* by agents to those knockouts are *handled* with an *automated authorization process*

# Developed rule functionality

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## Sales & Service Portal Releases for Auto & Home Quote / New Business with Rules Engine Functionality

### ▶ Data Validation Edits

- ▶ The user interface for quote and new business includes *complete edits* for critical tiering and rating data
- ▶ Applications cannot be bound until *necessary information is complete*

### ▶ Referral Rules

- ▶ *Referral rules functional* for new business, policy changes and renewals on auto and home new business
- ▶ Underwriting *referrals do not stop the issuance* of the policy
- ▶ Referrals have been *divided into three categories* to facilitate handling

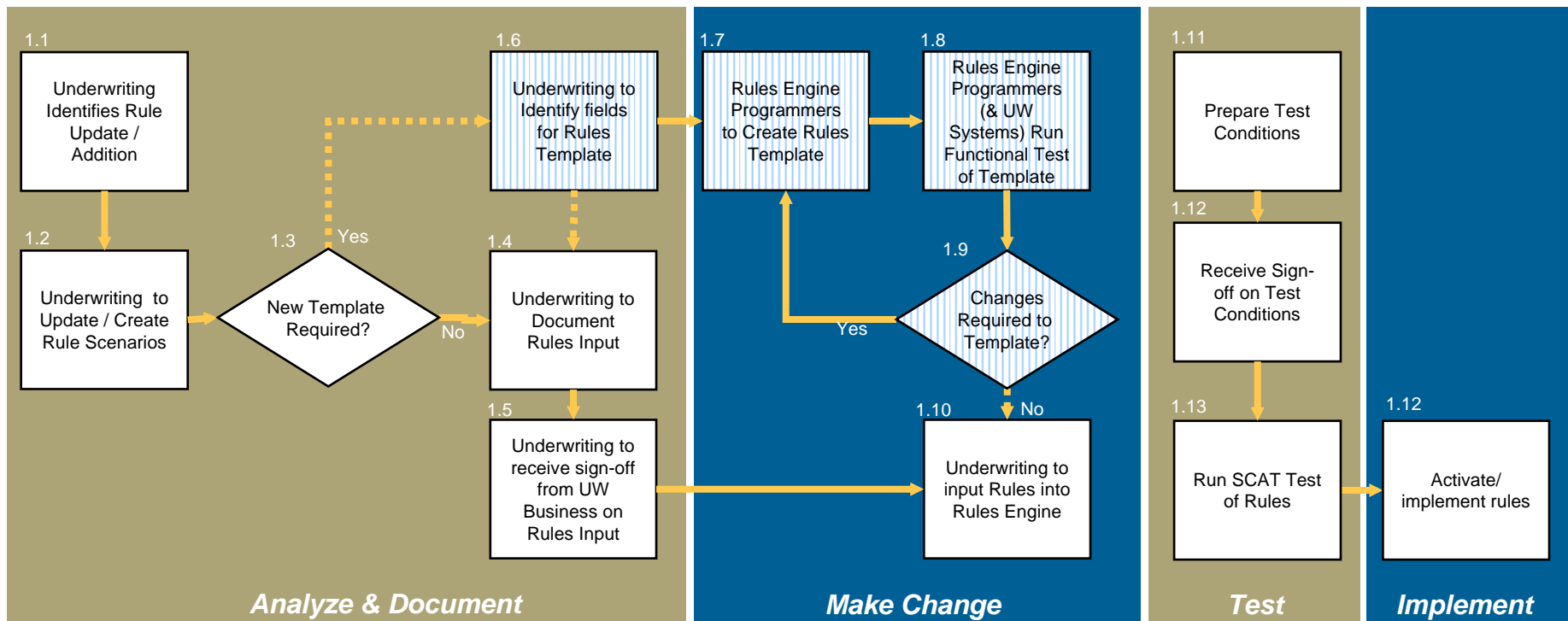
### ▶ Rules Reporting


- ▶ *Rule firing data is captured* in a database and is available monthly to be analyzed on an ad-hoc basis


# Rules maintenance


The rules maintenance process has been designed to ensure proper coordination between business and systems teams to release rule changes

## Rules Maintenance Process



 Systems Driven with Integrated Business Involvement Primarily Driven by the Business

 Identifies the "alternate path" for new rule creation

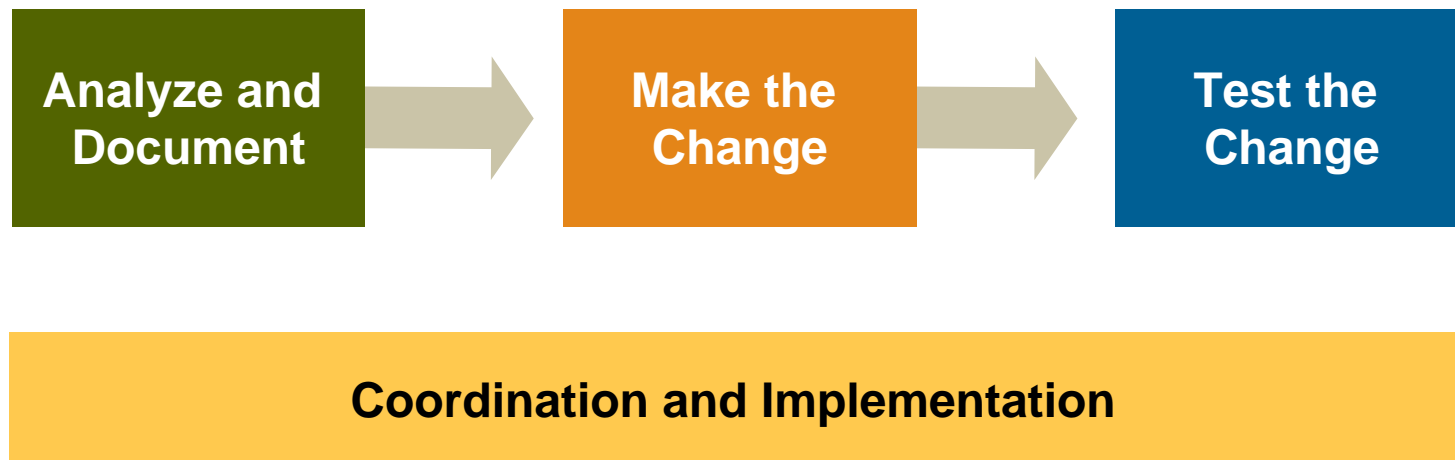
 1.6: After identifying fields for rules template, UW Systems would continue to follow "primary path"

 1.12: Implementation activities have not been fully defined

## Rules maintenance

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The rules maintenance process flow will be further simplified to the following flow for purposes of illustrating the end-to-end rule maintenance process



# Rules maintenance

Underwriting rules are broken out by various rule sets / tasks as illustrated below. The affected rule set must be identified.

Image captured with HyperSnap-DX  
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<http://www.hyperionics.com>

## Rules & Service Rule Maintenance Center

Help

Willie Hall, signed in since : 8/22/0

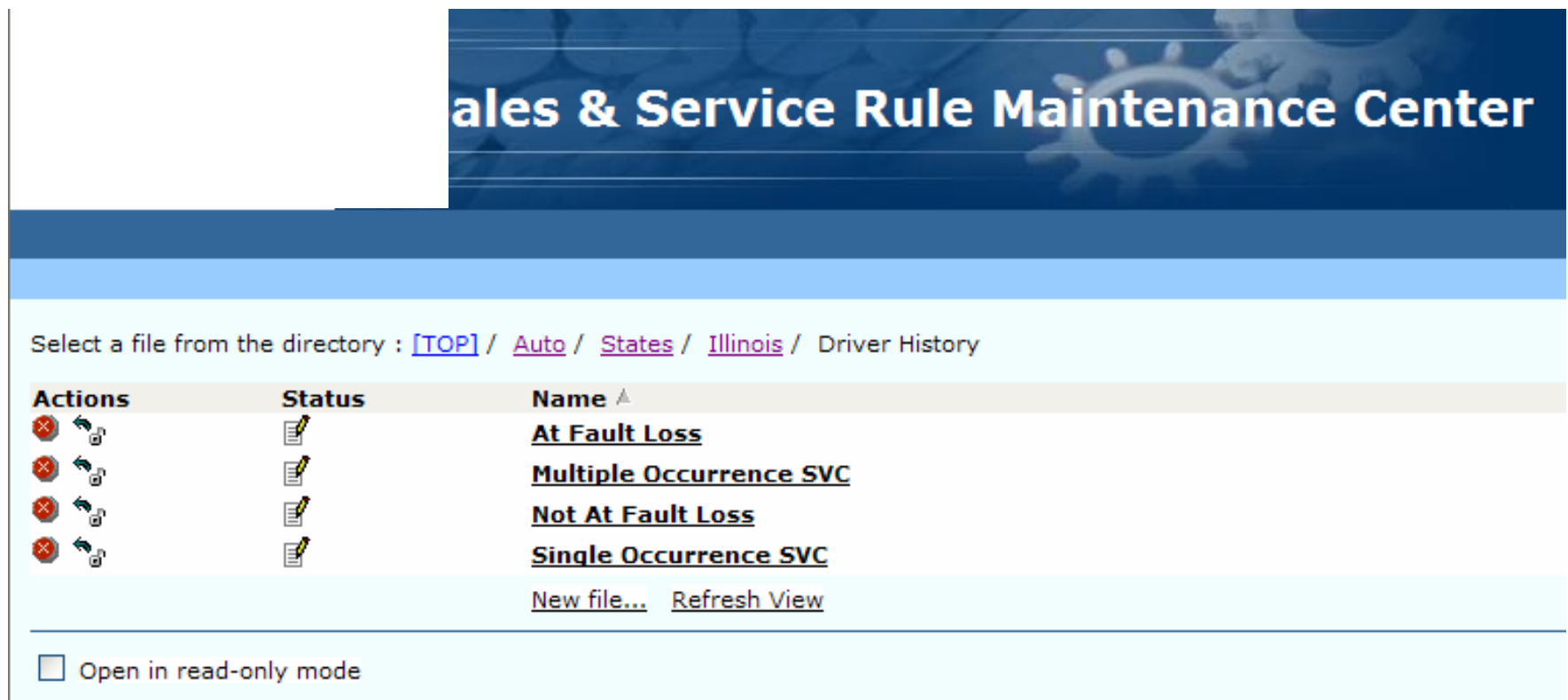
Select a file from the directory : [TOP](#) / [Auto](#) / [States](#) / Illinois

Actions	Status	Name ^	Version	Owner	Last Modified
		 <a href="#">Driver History</a>			
		 <a href="#">Project</a>			
		 <a href="#">Tiering</a>			
		<a href="#">New file...</a> <a href="#">Refresh View</a>			

Open in read-only mode













# Rules maintenance

The placement of the template must also be determined. The picture below depicts templates that fall within the Driving History task.



Rules & Service Rule Maintenance Center

Select a file from the directory : [\[TOP\]](#) / [Auto](#) / [States](#) / [Illinois](#) / Driver History

Actions	Status	Name ▲
 		<b><u>At Fault Loss</u></b>
 		<b><u>Multiple Occurrence SVC</u></b>
 		<b><u>Not At Fault Loss</u></b>
 		<b><u>Single Occurrence SVC</u></b>

[New file...](#) [Refresh View](#)

Open in read-only mode

# Rules maintenance

An Underwriting Analyst will be able to locate rules through the rules list that is provided within the template category.

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<http://www.hyperionics.com>

## Rules & Service Rule Maintenance Center

Help | Sign Out

Willie Hall, signed in since : 8/21/03 1:28 PM

/Auto/States/Illinois/Driver/At Fault Loss Working Copy Save Save As Split View Up

At Fault Loss  
Illinois At Fault Loss Rules 1

#	Rule Name	Description	Effective Date	Expiration Date	Points
1	Major AF	Bodily Injury/Fatality	Aug 20, 2003	Aug 20, 2004	3

< New Illinois At Fault Loss Rules >

Submit

# Rules maintenance

The Underwriting Analyst will input the rule into a rules template as illustrated below.

Image captured with HyperSnap-DX  
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<http://www.hyperionics.com>

## Rules & Service Rule Maintenance Center

/Auto/States/Illinois/Driver/At Fault Loss Working Copy

### Illinois At Fault Loss Rules

**At Fault Loss**  
[Illinois At Fault Loss Rules 1](#)

**Rule Name:** Major AF

**Rule Description:** Bodily Injury/Fatality

**The Effective Date:** Aug 20, 2003

**The Expiration Date:** Aug 20, 2004

**The Percentage of Fault:** is greater than or equal to 50 %

**The Paid Amount:** is less than 750

**Is there Bodily Injury:** true

**Number of Occurrences:** 1

**Select the Points:** 3

**Duration Points Counted:** 1 year

Submit

# Rules engine benefits

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**Business rule benefits by integrating rule application into the sales process at the point of sale.**

## ▶ **Profitability / Risk Mitigation**

- ▶ Consistent application of underwriting rules across all markets
- ▶ Improved risk assessment
- ▶ Improved risk classifications/pricing
- ▶ Limiting exceptions to current rules
- ▶ Improved loss ratio

## ▶ **Efficiency / Cost Reduction**

- ▶ Leverage underwriting FTEs, allowing response to increased volumes and new markets
- ▶ Migrate to “portfolio management”
- ▶ Reduce decision referrals for underwriters review
- ▶ Improved response time

# Rules engine benefits

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**Business rule benefits by integrating rule application into the sales process at the point of sale.**

▶ **Efficiency / Cost Reduction (Continued)**

- ▶ Consistency in business processes where possible across markets
- ▶ Reduce cost of obtaining and applying external data
- ▶ Reduce IT maintenance and support costs

▶ **Process Management / Business Agility**

- ▶ Improved process control enables faster implementation of underwriting changes
- ▶ Improved ability to react to market conditions – “real” time
- ▶ Ability to focus on key performance drivers; agent, vehicles / home types, etc.
- ▶ Speed to new markets

## Rules engine benefits

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**Business rule benefits by integrating rule application into the sales process at the point of sale.**

### ▶ **Sales & Service Portal Statistics**

- ▶ Six states and two product lines (auto and home)
- ▶ Four transaction types (quote, new business, policy changes and renewals)
- ▶ 3,120 active rules
- ▶ Expanded current rule sets to allow for more refined market segmentation
- ▶ *All in Twenty Four Months!*

## Decision Management Evolution

***Looking forward with  
the same unobstructed  
view looking over your  
shoulder provides...***

## Future rule functionality

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The possibilities are limited only by your own curiosity and creativity...

### ▶ Further Expansion of Rules Engine

- ▶ *Hard coded rules can be moved* from mainframe applications and Java based User Interfaces to the Rules Engine allowing for greater flexibility for future changes

### ▶ Rules Reporting

- ▶ Rules reporting expanded to *marrying rules firings data with risk data*
  - ▶ *Provides validation* of current rule set
- ▶ Marrying of *policy record and loss data with rule firings*
  - ▶ Creates possibility of *further rule or pricing segmentation*
- ▶ With quality data, gathered together, *Predictive modeling* possibilities are limitless

# Future rule functionality

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## Rules Engine as an Enterprise-Wide Solution

### ▶ Predictive Modeling for Underwriting Tool Use

- ▶ MVR report modeling for most effective application of this underwriting tool

### ▶ Claims Fraud Indicator

- ▶ Claims fraud detection processes can be written into the rules engine tool, either real time or batch to ***alert your SIU of potential fraud claims***

### ▶ Call Center Application

- ▶ Consider the creation of a rules engine application to handle in-bound calls, assessing them to ***provide VIP treatment*** for your best customers

# Enterprise Decision Management

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The future is here...

## ▶ Automate

### ▶ High volume operational decisions

- ▶ Business rules software

## ▶ Improve

### ▶ Quality and Results from Decisions

- ▶ Predictive analytics and decision optimization

## ▶ Connect

### ▶ Across Channels, Systems and Customer Lifecycle

- ▶ Greater alignment of execution with business strategy

**Dr. Mark Greene, CEO, Fair Isaac**

**Q & A**

