

Perytons™ Monitoring Add-On - Overview

The Peryton-Monitoring Add-On allows to locally or remotely monitor operational networks for performance and interesting scenarios.

By using the built-in Open Source Rules wizard, the user can define, write and sign Open Source Rules (which are practically small pieces of intuitive code) that run on the received messages based on the specific criteria or scenario being investigated. Open Source Rules results can be set to generate events and/or alarms, update device icons in the Network View window, create new customized statistics charts, send specific messages to an external application via UDP and more.



Events and alarms are logged into the Events Log window, and can generate automatic e-mail or other alerts.

The Peryton-Monitoring Add-On SW is very useful for system integrators, operators and field engineers, looking to monitor live system performance, identify misbehavior, etc.

Defining, writing and debugging Open Source Rules is possible with the Peryton-Monitoring Add-on license and the resulting code can be used in any of the standard Perytons™ Protocol Analyzer licenses. Definition of Open Source Rules is easy, yet allows maximal flexibility. An Open Source Rule can run on any field, looking for its value, meaning, hint, text or bare existence. Functions and variables can also be defined and used within Open Source Rules.

Open Source Rules can be used to mark selected messages with specific color (in the Time View window), set bookmark to identify interesting instances in time, add selected messages to the Message View window (such an Open Source Rule makes it easier to identify processes and transactions of interest in the presence of many messages which are not relevant for the current analysis), change device icons in the Network View window, change specific received messages and re-transmit them back over the air (if the Peryton-Traffic Generator (TG) Add-On is enabled).

There is no need for external development tools for defining and running Open Source Rules since a wizard is included as part of the Peryton-Monitoring Add-On. After it has been written and signed, the Open Source Rule can be shared with other Perytons™ Protocol Analyzer users and incorporated into their analyzer environment. Open Source Rules are also kept in a workspace environment for easy sharing of the tested scenario with other Perytons™ Protocol Analyzer users.

The Peryton-Monitoring Add-On can run on top of any of the Peryton models.

The screenshot displays the 'Offline Active Monitoring Rules' editor. The code editor contains the following Open Source Rule:

```

Rule
  AckLatency
  // will hold a list of messages that expect ack
  // ack time latency histogram
  int AckMessageCount = 0; double[] AckHistogram = new double[100];
  // init chart properties (line thickness, symbol properties etc.)
  public AckLatency (Stat stat)
  {
    stat.SetProperties("Ack latency histogram", null, new Stat.SymbolType[] { Stat.SymbolType.None}, new int[] { 1 });
  }
  // this method is called per every received message
  public override void RuleAction(Message packet)
  {
    packet.AddTimeView(); // add this message to time view
    if (packet.Field("Info[SourceMessageAck]").Exists) // this packet expects ack, and ack message was found
      MessageTime[] list = packet.Field("Info[SourceMessageAck]").Value;
      else
      {
        if (packet.Field("Info[SourceMessageAck]").Exists) // this is an ack message:
        {
          long time = packet.Field("Info[SourceTime]").Value;
          if (MessageTime.ContainsKey(packet.Index)) // find original message in the list
          {
            long timeDiff = time - MessageTime[packet.Index].Time; // msec
            if (timeDiff > 0) && (timeDiff < 100)
            {
              AckHistogram[(int)(timeDiff/10)]++; AckMessageCount++;
            }
            if (timeDiff > 10) // more than 10msec
            {
              packet.AddTimeView(); // add this message to message view
              // issue an event, severity "info"
              LogTest.LogMessage.GetLogger("Message").Info("Long ack latency, Message# " + packet.Index + "
            }
          }
        }
      }
  }
  base.BaseRule(packet);
  
```

Overlaid on the code editor is a flowchart illustrating the rule's logic:

```

graph TD
    Start([Get new message]) --> Decision1{Does it expect ack?}
    Decision1 -- No --> End1([End])
    Decision1 -- Yes --> AddDB1[Add To DB]
    AddDB1 --> BuildChart[Build histogram into chart]
    BuildChart --> Decision2{Is it ack?}
    Decision2 -- No --> End2([End])
    Decision2 -- Yes --> SearchDB[Search in DB]
    SearchDB -- Found --> AddLatency[Add latency to histogram]
    SearchDB -- Not Found --> GenerateEvent[Generate event Add to Message View]
    AddLatency --> GenerateEvent
    
```

At the bottom, an 'Ack latency histogram' chart shows the percentage of messages versus time in milliseconds. An 'Events Log' window is also visible, listing events such as 'Long ack latency, Message#7 10.630msec'.

See additional information about Open Source Rules at <http://www.perytons.com/files/Peryton-OpenSourceRules.pdf>.