Tomcat Clsutering

— *2024/12/11 13:51*

> ⚠️ Tomcat 9.x
> . Tomcat 7.x   .

Tomcat Clustering   https://tomcat.apache.org/tomcat-9.0-doc/cluster-howto.html
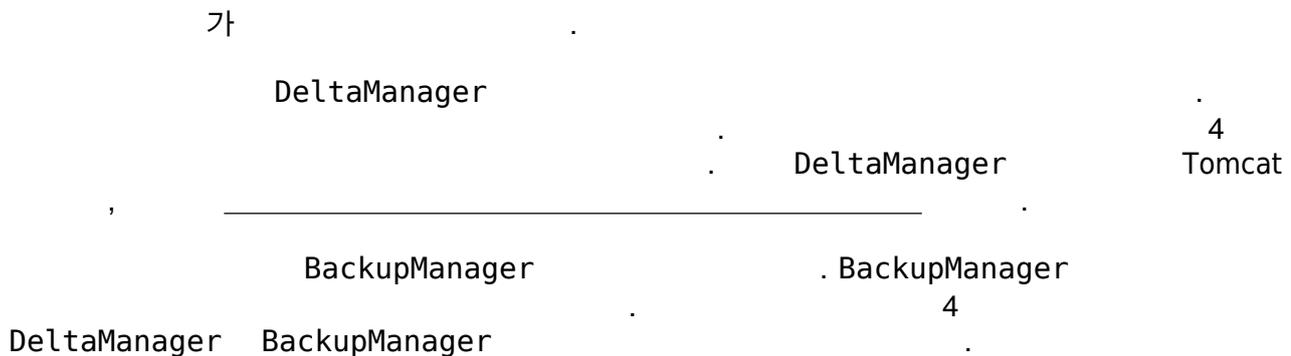   .

- web.xml   `<distributable/>`
- Session attributes   `java.io.Serializable`   .
  `sessionAttributeFilter`   .
- DeltaManager
  `org.apache.catalina.ha.session.ClusterSessionListener`   .
- DeltaManager   4   . 5
  BackupManager
-
        .

```
<Cluster className="org.apache.catalina.ha.tcp.SimpleTcpCluster"/>
```

                        .

                DeltaManager   .
                                          .   4
                                      .   DeltaManager   Tomcat
    ,   ——————————————————————————   .

                  BackupManager   . BackupManager
                                      .   4
DeltaManager   BackupManager   .

                              .

- 228.0.0.4   .

- 45564 ( )
- IP java.net.InetAddress.getLocalHost().getHostAddress()
  . (127.0.0.1 .)
- TCP 4000-4100 .
- ClusterSessionListener .
- TcpFailureDetector MessageDispatchInterceptor .

TCP StaticMembership

Multicast .

IGMP .

IGMP Multicast TCP
Static Cluster Membership .

> Tomcat 9.0.17 Membership
> StaticMembershipService .
> StaticMember 2
> .

	StaticMembershipService	StaticMembershipInterceptor
	<Membership> .	<Interceptor> .
	org.apache.catalina.tribes.membership.StaticMembershipService	org.apache.catalina.tribes.group.interceptors.StaticMembershipInterceptor
	( ).	( ).
	<Member> <LocalMember> .	<Member> .
	.	.
	.	.

StaticMembershipService ( )

1. McastService Membership StaticMembershipService .
2. TCPPingInterceptor - StaticMember .

```
<Cluster className="org.apache.catalina.ha.tcp.SimpleTcpCluster"
        channelSendOptions="6">

  <Manager className="org.apache.catalina.ha.session.DeltaManager"
          expireSessionsOnShutdown="false"
          notifyListenersOnReplication="true"/>

  <Channel className="org.apache.catalina.tribes.group.GroupChannel">
    <!-- multicast membership -->
    <!--
    <Membership
```

```
className="org.apache.catalina.tribes.membership.McastService"
                     address="${tomcat.cluster.member.address}"
                     port="${tomcat.cluster.member.port}"
                     frequency="500"
                     dropTime="3000"
                     />
          -->
          <!-- static membership
     9.0.17                          StaticMembershipService          .
          Interceptor                                                 .
          -->
          <Membership
className="org.apache.catalina.tribes.membership.StaticMembershipService">
            <Member
className="org.apache.catalina.tribes.membership.StaticMember"
                     port="5011"
                     host="10.33.0.51"
                     uniqueId="{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,1}"/>
            <Member
className="org.apache.catalina.tribes.membership.StaticMember"
                     port="5011"
                     host="10.33.0.52"
                     uniqueId="{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,2}"/>
          </Membership>

          <Receiver
className="org.apache.catalina.tribes.transport.nio.NioReceiver"
                   address="${tomcat.cluster.receiver.address}"
                   port="${tomcat.cluster.receiver.port}"
                   autoBind="100"
                   selectorTimeout="5000"
                   maxThreads="6"
                   />

          <Sender
className="org.apache.catalina.tribes.transport.ReplicationTransmitter">
            <Transport
className="org.apache.catalina.tribes.transport.nio.PooledParallelSender"/>
          </Sender>
          <!-- if use StaticMembership enable TcpPingInterceptor -->
          <Interceptor
className="org.apache.catalina.tribes.group.interceptors.TcpPingInterceptor"
/>
          <Interceptor
className="org.apache.catalina.tribes.group.interceptors.TcpFailureDetector"
/>
          <Interceptor
className="org.apache.catalina.tribes.group.interceptors.MessageDispatchInte
rceptor"/>

      </Channel>
```

```
            <Valve className="org.apache.catalina.ha.tcp.ReplicationValve"
                    filter=""/>
            <Valve
className="org.apache.catalina.ha.session.JvmRouteBinderValve"/>
            <!--
            <Deployer className="org.apache.catalina.ha.deploy.FarmWarDeployer"
                    tempDir="/tmp/war-temp/"
                    deployDir="/tmp/war-deploy/"
                    watchDir="/tmp/war-listen/"
                    watchEnabled="false"/>
             -->

            <ClusterListener
className="org.apache.catalina.ha.session.ClusterSessionListener"/>
        </Cluster>
```

StaticMembershipInterceptor   (9.0.17   -
)

1. McastService Membership   .
2. TCPPingInterceptor   - StaticMember   .
3. StaticMembershipInterceptor

   StaticMembershipInterceptor   TCP StaticMember
.

```
        <!-- channelSendOptions       6:            8:
     8:                 Receiver   selectorTimeout   5000(5 )
        channelStartOptions
                     .
        -->
        <Cluster className="org.apache.catalina.ha.tcp.SimpleTcpCluster"
                channelSendOptions="6">

          <!-- Delta Manager -->
          <Manager className="org.apache.catalina.ha.session.DeltaManager"
                expireSessionsOnShutdown="false"
                notifyListenersOnReplication="true"/>

          <!-- Backup Manager
          <Manager className="org.apache.catalina.ha.session.BackupManager"
                expireSessionsOnShutdown="false"
                notifyListenersOnReplication="true"
                mapSendOptions="6"/>
          -->

          <Channel
className="org.apache.catalina.tribes.group.GroupChannel">
```

```
              <!-- Multicast Member -->
              <!--
              <Membership
className="org.apache.catalina.tribes.membership.McastService"
                          address="${tomcat.cluster.member.address}"
                          port="${tomcat.cluster.member.port}"
                          frequency="500"
                          dropTime="3000"/>
              -->

              <Receiver
className="org.apache.catalina.tribes.transport.nio.NioReceiver"
                        address="${tomcat.cluster.receiver.address}"
                        port="${tomcat.cluster.receiver.port}"
                        selectorTimeout="100"
                        maxThreads="6"/>

              <Sender
className="org.apache.catalina.tribes.transport.ReplicationTransmitter">
                  <Transport
className="org.apache.catalina.tribes.transport.nio.PooledParallelSender"/>
              </Sender>

      <!--                                                           .

    ping          .


                              .
                  TcpFailureDetector                          . -->
              <Interceptor
className="org.apache.catalina.tribes.group.interceptors.TcpPingInterceptor"
/>
      <!--                                                                    -
->
              <Interceptor
className="org.apache.catalina.tribes.group.interceptors.TcpFailureDetector"
/>
              <Interceptor
className="org.apache.catalina.tribes.group.interceptors.MessageDispatchInte
rceptor"/>
              <Interceptor
className="org.apache.catalina.tribes.group.interceptors.ThroughputIntercept
or"/>

              <!-- StaticMember
    . -->
              <Interceptor
className="org.apache.catalina.tribes.group.interceptors.StaticMembershipInt
erceptor">
         <!--
              : Tomcat 9.0.17                      <LocalMember>
                              .
```

```
                                            <Member>
    , Tomcat                                 .
                        LocalMember                                 .
https://tomcat.apache.org/tomcat-9.0-doc/config/cluster-membership.html#Sett
ing
                -->
                <!--
                <LocalMember
className="org.apache.catalina.tribes.membership.StaticMember"
                                domain="staging-cluster"
uniqueId="{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,1}"/>
                -->

        <!--                                      -->
                <Member
className="org.apache.catalina.tribes.membership.StaticMember"
                        port="4000"
                        securePort="-1"
                        host="tomcat2"
                        domain="staging-cluster"
                        uniqueId="{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,2}"/>
            </Interceptor>

        </Channel>

    <!--                                              -->
        <Valve className="org.apache.catalina.ha.tcp.ReplicationValve"
filter=".*\.gif|.*\.js|.*\.jpeg|.*\.jpg|.*\.png|.*\.htm|.*\.html|.*\.css|.*\
.txt"/>

        <!-- route              jvmRoute               .
                route              jvmRoute              failback
-->
        <Valve
className="org.apache.catalina.ha.session.JvmRouteBinderValve"/>

    <!--                                              <Host

        <Deployer
className="org.apache.catalina.ha.deploy.FarmWarDeployer"
                    tempDir="/tmp/war-temp/"
                    deployDir="/tmp/war-deploy/"
                    watchDir="/tmp/war-listen/"
                    watchEnabled="false"/>
        -->

        <!-- DeltaManager             -->
        <ClusterListener
className="org.apache.catalina.ha.session.ClusterSessionListener"/>
    </Cluster>
```

- https://tomcat.apache.org/tomcat-9.0-doc/cluster-howto.html
- https://tomcat.apache.org/tomcat-9.0-doc/config/cluster-membership.html
  - tomcatcluster_0.pdf

From:
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