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| **七、工作基础** |
| 通过SNMP协议读取OID信息  SNMP协议通过读取对应OID来获取对应的信息。OID（Object Identifier，对象标识符又称为物联网域名）是由ISO/IEC、ITU-T国际标准化组织上世纪80年代联合提出的标识机制，采用分层树形结构对任何类型的对象（包括实体对象、虚拟对象、复合对象等）进行全球无歧义、唯一命名。OID具有分层灵活、扩展性强、跨异构系统等优势，并可兼容现有标识机制，已经广泛应用于信息安全、医疗卫生、网络管理等领域。[2]  SNMP读取OID信息，有GET和WALK两种方式：GET为获取当前节点的值，WALK为获取当前节点所有子节点的值。  1) GET方式获取SNMP的值：  /// <summary>  /// GET方法获取SNMP信息  /// </summary>  /// <param name="host">服务器名或IP</param>  /// <param name="key">SNMP口令</param>  /// <param name="oid">OID</param>  /// <returns></returns>  private string GetOidData(string getoidname, string host, string key, string oid)  {  string str = string.Empty;  try  {  OctetString community = new OctetString(key);  // Define agent parameters class  AgentParameters param = new AgentParameters(community);  // Set SNMP version to 1 (or 2)  param.Version = SnmpVersion.Ver1;  // Construct the agent address object  // IpAddress class is easy to use here because  // it will try to resolve constructor parameter if it doesn't  // parse to an IP address  IpAddress agent = new IpAddress(host);  // Construct target  UdpTarget target = new UdpTarget((IPAddress)agent, 161, 2000, 1);  // Pdu class used for all requests  Pdu pdu = new Pdu(PduType.Get);  pdu.VbList.Add(oid); //sysName  // Make SNMP request  SnmpV1Packet result = (SnmpV1Packet)target.Request(pdu, param);  // If result is null then agent didn't reply or we couldn't parse the reply.  if (result != null)  {  // ErrorStatus other then 0 is an error returned by  // the Agent - see SnmpConstants for error definitions  if (result.Pdu.ErrorStatus != 0)  {  // agent reported an error with the request  log.Error(host + " " + (string.Format("Error in SNMP reply. Error {0} index {1}",result.Pdu.ErrorStatus,result.Pdu.ErrorIndex)));  }  else  {  // Reply variables are returned in the same order as they were added  str = result.Pdu.VbList[0].Value.ToString().Trim();  }  }  else  {  log.Error(host + " ,No response received from SNMP agent.");  }  target.Close();  }  catch (Exception ex)  {  log.Error(ex.Message);  str = "";  }  return str;  }  2) 通过WALK方式获取SNMP的值  /// <summary>  /// WALK方法获取SNMP信息  /// </summary>  /// <param name="walkoidname"></param>  /// <param name="host">服务器名或IP</param>  /// <param name="key">SNMP口令</param>  /// <param name="oid">OID</param>  /// <returns></returns>  private List<SnmpResult> GetOidList(string walkoidname, string host, string key, string oid)  {  List<SnmpResult> slist = new List<SnmpResult>();  try  {  SimpleSnmp snmp = new SimpleSnmp(host, key);  if (!snmp.Valid)  {  log.Error(host + " , " + walkoidname + " ,SNMP agent host name/ip address is invalid.");  slist.Clear();  return slist;  }  Dictionary<Oid, AsnType> result = snmp.Walk(SnmpVersion.Ver2, oid);  if (result == null)  {  log.Error(host + " , " + walkoidname + " ,No results received.");  slist.Clear();  return slist;  }  if (result.Count > 0)  {  foreach (KeyValuePair<Oid, AsnType> kvp in result)  {  slist.Add(new SnmpResult()  {  Oid = kvp.Key.ToString(),  Type = SnmpConstants.GetTypeName(kvp.Value.Type),  Value = kvp.Value.ToString().Trim()  });  }  }  else  {  log.Error(host + ",Results Count is zero.");  slist.Clear();  return slist;  }  }  catch (Exception ex)  {  log.Error(ex.Message);  slist.Clear();  }  return slist;  } |